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Holding Technical Institute

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General Catalog
1970-1972

NON-DISCRIMINATION INFORMATION

W. W. Holding Technical Institute has filed with the Federal Government an Assurance of Compliance with all requirements imposed by or pursuant to Title VI of the Civil Rights Act of 1964 and the Regulation issued thereunder, to the end that no person in the United States shall, on the ground of race, color or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity of this institution receiving Federal financial assistance. Under this Assurance, this institution is committed not to discriminate against any person on the ground of race, color or national origin in its admission policies and practices or any other policies and practices of the institution relating to the treatment of students and other individuals, including the provision of services, financial aid and other benefits, and, including the use of any building, structure, room, space, materials, equipment, facility or other property. Any person who believes himself, or any specific class of individual, to be subjected to discrimination prohibited by Title VI of the Act and Regulation issued thereunder may, by himself or a representative, file with the United States Commissioner of Education or with this institution, or both, a written complaint.



The provisions of this publication are not to be regarded as an irrevocable contract between the student and W. W. Holding Technical Institute. The Institute reserves the right to change any provisions or requirement at any time within the student's term of residence, or to add or withdraw course offerings. The Institute further reserves the right, at any time, to request a student to withdraw when it considers such action to be in the best interests of the Institution.

W. W. Holding Technical Institute

Raleigh, North Carolina

MEMBER OF

American Association of Junior Colleges
American Society for Engineering Education
American Technical Education Association
American Vocational Association
National League for Nursing

ACCREDITED AND APPROVED BY

Department of Public Instruction
Division of Vocational Rehabilitation
Veterans Administration
North Carolina State Board of Nursing
American Society of Clinical Pathologists
Southern Association of Colleges and Schools

Catalog of Information

1970-72



Robert W. LeMay, Jr., President



W. W. Holding Technical Institute

TELEPHONE 772-0551 ♦ ROUTE 10 ♦ BOX 200 ♦ RALEIGH, NORTH CAROLINA 27603

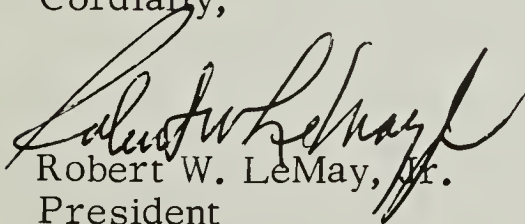
A MESSAGE FROM THE PRESIDENT:

With the individual in mind, we have a commitment to the philosophy that through the educational process everyone should have the opportunity to develop the maximum of his or her potential. This means providing low cost, quality education under an "open door" policy that bars no one.

Foremost among the educational objectives of W. W. Holding Technical Institute is the express intent to prepare its students for life-long success. Our approach to this results in a continual upgrading of technical and vocational curricula so that they realistically prepare the student for successful transition into our present industrial economy.

In the selection of our faculty and staff we attempt to combine the best in academic, industrial, and professional experience. Our physical plant houses modern, well-equipped shops, laboratories, and classrooms. The opportunity is yours to enhance your personal growth. We invite you to visit with us and discuss the possibility of a technical or vocational education.

Cordially,



Robert W. LeMay, Jr.
President

NOTE

W. W. Holding Technical Institute issues this catalog for the purpose of furnishing prospective students and other interested persons information about the institution and its programs. Announcements contained herein are subject to change without notice and may not be regarded in the nature of binding obligations on the Institute. Efforts will be made to keep changes to a minimum, but changes in policy by the State Board of Education, the Department of Community Colleges, or by local conditions may make some alterations in curriculums or fees necessary.

VISITORS

Visitors, and in particular prospective students, are always welcome at Holding Technical Institute. The Student Personnel Office will provide guided tours for groups or individuals on week days between 9:00 a.m. and 4:00 p.m. The Institute is open until 10:00 p.m. and individuals may visit at their convenience.

STATEMENT OF POLICY

The contact hours shown in the catalog are minimal. It is a policy of this institution to permit students to enroll in additional subjects and laboratory work beyond those shown in the catalog.

When in any quarter the total weekly contact hours listed are fewer than twenty-five hours in a technical curriculum and fewer than thirty hours in a vocational trade curriculum, a student may request additional hours. These hours must be deemed by the Institution to be consistent with the program and appropriate to the student. These additional hours, when combined with the regular hours, are to total twenty-five hours per week in a technical curriculum, or sufficient yours of attendance to make up thirty hours per week in a vocational trade curriculum for students using Veteran's Benefits.

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ACADEMIC YEAR 1970-71

Fall Quarter, 1970

September	1	Registration
September	2	Registration
*September	7	Labor Day Holiday
September	9	Classes begin, late registration fees apply
September	14	Last day of registration
September	22	Last day for dropping a subject without penalty
October	14	Mid-term counseling reports due
November	24	End of quarter

Winter Quarter, 1970-71

November	25	Registration
*November	26-28	Thanksgiving Holidays
December	1	Classes begin, late registration fees apply
December	4	Last day of registration
December	14	Last day for dropping a subject without penalty
*December	24-January 3	Christmas Holidays
January	4	Classes resume
January	14	Mid-term counseling reports due
February	25	End of quarter

Spring Quarter, 1971

March	4	Registration
March	5	Classes begin, late registration fees apply
March	10	Last day of registration
March	17	Last day for dropping a subject without penalty
*April	9-12	Easter Holidays
April	18	Mid-term counseling reports due
May	24	End of quarter

Summer Quarter, 1971

May	26	Registration
May	27	Classes begin, late registration fees apply
June	1	Last day for dropping a subject without penalty
*July	2-3	Independence Day Holiday
July	5	Classes resume
August	11	End of quarter
August	12	Commencement Exercises

*Academic Holidays

ACADEMIC YEAR 1971-72

Fall Quarter, 1971

September	1	Registration
September	2	Registration
*September	6	Labor Day Holiday
September	8	Classes begin, late registration fees apply
September	10	Last day of registration
September	21	Last day for dropping a subject without penalty
October	13	Mid-term counseling reports due
November	23	End of quarter
*November	24-27	Thanksgiving Holidays

Winter Quarter, 1971-72

November	30	Registration
December	2	Classes begin, late registration fees apply
December	7	Last day of registration
December	15	Last day for dropping a subject without penalty
*December	23-January 2	Christmas Holidays
January	3	Classes resume
January	12	Mid-term counseling reports due
February	25	End of quarter

Spring Quarter, 1972

March	1-2	Registration
March	6	Classes begin, late registration fees apply
March	8	Last day of registration
March	17	Last day for dropping a subject without penalty
*March	31-April 3	Easter Holidays
April	14	Mid-term counseling reports due
May	23	End of quarter

Summer Quarter, 1972

May	29-30	Registration
June	1	Classes begin, late registration fees apply
June	6	Last day for dropping a subject without penalty
*July	3-4	Independence Day Holiday
July	5	Classes resume
August	16	End of quarter
August	17	Commencement Exercises

* Academic Holidays

BOARD OF TRUSTEES
W. W. HOLDING TECHNICAL INSTITUTE

L. E. Pucher, Chairman

General Manager, Electric Storage Battery Co., Raleigh

William D. Ashley, Vice-Chairman

President, Storr Sales Co., Raleigh

Arthur L. Becker

Retired IBM Executive, Raleigh

Carl Boone (Proc) Dean

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Paul A. DelaCourt

General Manager, Rockwell Manufacturing Co., Raleigh Plant

Anthony DeLisse

General Manager, J. F. D. Electronics, Graham Plant, Raleigh

Thomas M. Grimes

Assistant Superintendent, Wake County Schools, Cary

Joseph Q. Holliday

Director Secondary Education, Raleigh Public Schools, Raleigh

Douglas Y. Perry

Smith, Mills, & Perry, Architects-Engineers, Zebulon

Philip O. Redwine

Attorney-at-law, Fuquay-Varina

Carter S. Schaub

Owner, Petroleum & Trucking Co., Apex

Dr. W. L. Woodard

Dentist, Garner

ADMINISTRATIVE STAFF

Robert W. LeMay, Jr., President

B.S., University of Cincinnati; M.B.A., Syracuse University

Carlton S. Ashby, Placement & Coordination Coordinator

B.S., North Carolina State University; M.Ed., North Carolina State University

Robert L. Brown, Dean of Students

B.S., Wake Forest University; M.Ed., North Carolina State University

Donald F. Corlett, Associate Dean of Occupational Education

B. S. North Carolina State University; M.I.A. North Carolina State University; Ed. D. North Carolina State University

James A. Cox, Director of Administration

B.S., North Carolina State University; Graduate Study, North Carolina State University

William A. Diehl, Basic Education Coordinator

B.S., Davidson College

Robert L. Hendrix, Director of Adult Education

B.S., North Carolina State University; M.Ed., North Carolina State University

Laurin J. Kaasa, M.D., Adjunct Director, Medical Laboratory Assistant Program

B. A., Luther College, Decorah, Iowa, M.D. University of Minnesota

Rosemary M. Jones, Counselor

A.B., Baylor University; M.A., North Carolina State University

Paul M. Maultsby, Director of Admissions

A.B., University of North Carolina at Chapel Hill; M.A., Western Carolina University

Phares S. Nye, Associate Dean of Occupational Education

B.S.I.A., North Carolina State University; M.S.I.E., North Carolina State University

Vernon L. Parker, Evening Administrator

B.S., Atlantic University

Willis M. Parker, Dean of Occupational Education

B.S., North Carolina State University; M.S., North Carolina State University

Sara C. Seagle, Librarian

B.A., University of North Carolina at Greensboro

Margaret D. Smith, Director of Public Relations

A.B., University of Georgia

Martha I. Stephenson, Registrar

B.A., Wake Forest University; Graduate Study, North Carolina State University

Charles T. Trent, Director of Instructional Support Services

A.A., A.B., Campbell College; Graduate Study, University of North Carolina at Chapel Hill.

Ann H. Wade, Counselor

A.B., University of North Carolina, Chapel Hill; Graduate Study, North Carolina State University

Carolyn Watkins, Library Assistant

A.A.S., Caldwell Technical Institute

FULL TIME FACULTY

John B. Aldridge

Journeyman Welder

Kincheon H. Bailey, Jr.

B.S., United States Military Academy, West Point; M.Ed., Pennsylvania State University

Shirley Ball, A.S.C.P.

B.S., Old Dominion College

Naomi P. Barefoot

A.B., Meredith College

Patrick H. Barnes, Jr.

B.S.C.E., North Carolina State University; C.E., Virginia Polytechnic Institute; Sanitary Engineering, Harvard University

Joel Bass

General Motors Training Center; Universal Training Schools, Master Mechanic

Howard Blanton

B.S., East Carolina University

Theodore F. Bogart, Jr.

B.S.E.E., UCLA; M.S.E.E., UCLA; M.S., University of Arizona

Jefferson D. Brooks, III

Undergraduate Study, North Carolina State University

Betty H. Calloway, A.S.C.P.

University of North Carolina at Chapel Hill

Leonard H. Cannady

B.S., North Carolina State University

Donald N. Chesson

A.A.S., Wilson County Technical Institute

Ida M. Collie, R.N.

B.S., Vanderbilt University

Otis C. Council

Master Mechanic

David Lewis Eckhart

Journeyman Tool and Die Maker

Dare H. Filipski, R.N.

B.S., Duke University

James E. Ford

Journeyman Carpenter

Billy O. Fulghum

Journeyman Radio and Television Repairman

Andrew F. Goodnight

Journeyman Welder

William B. Goodson

B.S., Davidson College; Graduate Study, William and Mary, V.P.I.

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J. Randolph Green

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James Hamlet

Electronic Computer Programming Institute, Charlotte

Linwood D. Hicks
A.B., Duke University

Roena C. Honeycutt
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A.A.S., W. W. Holding Technical Institute

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John D. Jones
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Albert B. Knight
B.S., Carnegie Institute of Technology

Reginald Koontz
B.B.A., Wake Forest University; M.B.A., University of Georgia

Howard D. Lawrence
Aviation Electrician "B" School, United States Navy

Gordon W. Leech
B.S., Atlantic Christian College; M.B.A., East Carolina University .

Horace L. Macon
Journeyman Radio and Television Repairman

John J. Malia
B.S., Philadelphia College of Textiles and Science

Ollie C. Martinez
A.B., Atlantic Christian College; Graduate Study, University of North Carolina, Chapel Hill

Stuart Meade
Journeyman Air Conditioning and Refrigeration

Jean Miller
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North Carolina Baptist Hospital School of Nursing

Withers L. Nowlan
B.S., Campbell College

Nancy H. Partin, R.N.
N. C. Baptist Hospital School of Nursing, Undergraduate Study Limestone College

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B. S. Virginia Polytechnic Institute
Graduate Study-Virginia Associated Research Center

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Patsy S. Pierce

B.A., University of North Carolina, Chapel Hill

Benjamin Rogers

B.S., Campbell College; M.A., Appalachian State University

Edward P. Scannell

B.S., Tulane University; Graduate Study, North Carolina State University

William K. Shaw

General Motors Training School, Chrysler Training School, Ford Training School,
Master Mechanic

Cheryl P. Simpson, Learning Laboratory Coordinator

B.A., University of North Carolina at Greensboro

John Shelton Smith

B.S., North Carolina State University; M.Ed., North Carolina State University

Richard L. Smith

B.S., North Carolina State University

Bob I. Snapp

B. A. Catawba College; M.B.A. East Carolina University

Maxine Spivey, R.N.

Medical College of Virginia

Fred W. Strickland

Journeyman Brickmason

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B.S., University of North Carolina, Chapel Hill

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B.A., Meredith College

Mathai Thomas

B.S., North Carolina State University; Graduate Study, North Carolina
State University

Charles E. Weitzel

B.E.E., Georgia Institute of Technology; M.E.E., North Carolina State University

James A. White

Journeyman Carpenter

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B.S., University of South Carolina

Helen P. Wimbish, R.N.

B.S., University of North Carolina, Chapel Hill

Robert T. Woodlief

B. S. East Carolina University

George Wynne

B.S.C.E., University of North Carolina, Chapel Hill

GENERAL INFORMATION



THE INSTITUTE

HISTORY

W. W. Holding Technical Institute is a tax supported, public non-profit educational institution under the control of a Board of Trustees. It is an institutional member of the Department of Community Colleges, State Board of Education. Authority for the establishment of the institution is found in Chapter 115-A of the General Statutes of North Carolina and the amendments thereto.

Holding Technical Institute was chartered on April 3, 1958, as the Wake County Industrial Education Center. On January 8, 1964, the Center was transferred from the Wake County Board of Education to the Board of Trustees and the name was changed to W. W. Holding Industrial Education Center. On March 3, 1966, the Industrial Education Center was approved as a technical institute by the State Board of Education and licensed to award the Associate in Applied Science Degree.

PURPOSE OF THE INSTITUTION

The purpose of the W.W. Holding Technical Institute is to provide specialized occupational education to fill the manpower needs in our society and to provide for the fullest possible development of the potential of each student so that he may attain effective citizenship in his society.

To attain this purpose, offerings and programs are designed to meet the various interests and aptitudes of all prospective students. Curricula programs are designed to produce highly skilled, technical and semi-professional personnel to meet the needs of the expanding advances in industry and business and to strengthen the general educational base of our society.

The following major areas of specialized occupational education are provided:

A. Engineering Technican Education. Highly specialized training for effective entrance into specialized areas of business and industry. Elements of training common to all technician occupations are included such as basic science, mathematics, oral and written communication, engineering and industrial terminology, engineering and industrial drafting, and similar technical skills.

B. Business Education. Specialized training for entry into positions such as (a) management and sales, (b) accounting, and (c) secretarial in the legal, medical, technical, and executive fields. Elements of training common to all business occupations such as communication skills, economics and business law are included plus such specialized business subjects as accounting, business management, and business finance.

C. Vocational Education. Specialized training to provide depth in manipulative skills in a restricted range of activities and to develop a strong basic background of such related subjects as mathematics, science, and communication skills.

D. Health Occupations Education. Both technical and trade occupations. Provides the special technical knowledge and skills plus elements of training common to all occupations where state licensing is required. Dexterous manipulative skills and a strong basic background in science, mathematics, and communication skills are emphasized in the training for those health occupations where such skills are paramount.

LOCATION

Holding Technical Institute is located on U.S. Highway 401, 10 miles south of Raleigh. It is accessible to students residing in the Wake, Harnett, Johnston, and Franklin County areas.

There are presently four main structures on the thirty-two acre landscaped campus which house classrooms, shop areas, laboratories, a student lounge, a Learning Center, and administrative offices. Additional classrooms and laboratories for the instruction of Health Occupations curricula are located at Wake County Memorial Hospital in Raleigh.

In addition to the accommodations of the Institute, the Raleigh area offers many educational, cultural, and recreational opportunities to its residents.

AREAS OF STUDY

ASSOCIATE DEGREE PROGRAMS

Engineering Related Technologies

- Architectural Technology
- Chemical Technology
- Civil Engineering Technology
- Electrical Engineering Technology
- Electromechanical Technology
- Electronic Engineering Technology
- Industrial Engineering Technology

Business

- Accounting
- Business Administration
- Business Data Processing
- Court Reporting
- Secretarial Science (Executive, Legal and Medical Option)

Public Service

- Police Science Technology
- Traffic Engineering Technology

DIPLOMA PROGRAMS

Air Conditioning and Refrigeration Servicing
Automotive Repair
Electrical Installation and Maintenance
Machine Shop Practices
Mechanical Drafting
Medical Laboratory Assistant
Practical Nursing
Radio and Television Servicing
Tool and Die Practices
Welding

CONTINUING EDUCATION DIVISION

Extension

Occupational Up-grading Courses
Supervisory Development Training
Fire Service Training
Related Subjects for Apprentices and Journeymen

General Adult Education Programs

Academic Improvement
Adult High School Diploma Program
Courses of General Interest
High School Equivalency Certificate Preparation

Basic Adult Education Programs

Grades 0-4 Program
Grades 5-8 Program

CERTIFICATE PROGRAMS

Nursing Assistant (Aide and Orderly)
Operating Room Assistant
Practical Automotive Repair
Practical Carpentry
Practical Machine Operations
Practical Masonry
Practical Welding

QUARTER SYSTEM

The academic year is divided into four quarters of eleven weeks. Credits earned are in quarter hours. See course description section for number of credits required for graduation in each program.

LEARNING RESOURCES CENTER

The Learning Resources Center, located in the main building, is composed of the Library and the Programmed Materials Laboratory. The Learning Resources Center operates from 8:00 a.m. to 10:00 p.m. Mondays through Thursdays and from 8:00 a.m. to 5:00 p.m. on Fridays. It is open to the general public.

LIBRARY

The Library is typical of nonfiction libraries in general. The range of material is from periodicals to reference books and covers technical, business and trade areas. The scope of subject matter is extensive and should satisfy the needs of every educational level.

The general public and students are encouraged to use the Library and borrow books from it. Persons using the Library are expected to conform to standard practices on return of books. Late-return fines of five cents per day are in effect. Lost books must be replaced in kind or purchase price.

PROGRAMMED MATERIALS LABORATORY

The purpose of the Programmed Materials Laboratory is to make available to the community and the student body of Holding Technical Institute an opportunity to learn new subjects, strengthen weak areas of learning, or to study and qualify for a high school equivalency diploma. It serves as a remedial clinic for aspiring students and a programmed classroom for adults who desire new or specialized training.

The Programmed Materials Laboratory enables a person at any educational level to further his knowledge in any of forty subjects. This is a new approach to education with the use of programmed materials and teaching machines.

Programmed material is designed in such a manner as to aid the student in learning information in small sequences called 'Frames'. Each frame requires an immediate response, and each response is immediately checked. If the student fails to learn, or learns incorrectly, the program makes the correction or re-teaches. In this manner the student progresses at his own rate; he neither has to wait for others to catch up nor slow down to someone else's rate.

A coordinator, the person in charge of the Programmed Materials Lab, has the responsibility of locating the level at which a student can proceed to learn by

himself, of formulating a sequence of programs for the student to undertake to achieve his desired goal, and administering periodic tests that will assure the student that he is approaching his goal.

Because there are no classes in the Programmed Materials Lab, there is no need for anyone to wait until the new quarter to enroll. Each student sets his own work sessions and attends the lab as many days each week and as many hours each day as he thinks he can attend regularly. There are no fees, and any adult can take as many courses as fit his needs.

Admission Requirements

Any adult who has a desire to raise his or her educational level and who is able to benefit from study in the Programmed Materials Laboratory may enroll.

Expenses

There is no charge for study in the Programmed Materials Laboratory.

Hours of Operation

The Programmed Materials Laboratory is open daily from 8 A.M. to 10 P.M. Monday thru Thursday and 8 A.M. to 5 P.M. on Friday.

For Further Information

Individuals who have an interest in this are urged to visit the lab coordinator at the Institute or contact the coordinator by phone. Raleigh 772-0551.

ADMISSION INFORMATION*

All correspondence concerning enrollment should be addressed to the Director of Admissions.

The Holding Technical Institute follows the “Open Door” policy established by the State Board of Education. This policy provides for the admission of any person who has reached the age of 18, or whose high school class has graduated. This policy is based on the belief that the school has something to offer at all educational levels and that through effective guidance a person can find his or her place in the proper educational program.

1. Previous Education — Each applicant shall request his or her high school to submit a transcript to this institution. Those who are high school seniors should have their school submit a transcript showing work through the first semester of the senior year as soon as possible after the semester has ended, and a supplementary transcript showing graduation at the close of school.

Applicants who have the high school equivalency certificate should submit a copy of the certificate, but should also ask their high school to send transcript of all work done at the school.

Transcripts of previous education in colleges, technical institutes, etc., should also be submitted to the school. All transcripts must come directly from the school to the Technical Institute and not from the applicants themselves.

2. Placement Tests — The Institute administers a battery of placement tests to each applicant. The purpose of the tests is to assist the Institute in advising the student as to course placement. Qualified counselors at the Institute use the test results in helping individuals decide which course of study to follow. There is no charge for the test, nor for the counseling services.

3. Personal Interview — A personal interview is beneficial to both the applicant and to school officials in that it affords an opportunity to “get acquainted.” The applicant has an opportunity to ask questions about the Institute and its programs while Institute officials make an effort to evaluate the applicant’s interest in, and capability to pursue, the program of study for which he applied.

*For further information refer to the Technical and Trade Divisions.

ENTRANCE REQUIREMENTS*

ASSOCIATE DEGREE PROGRAMS

1. Must be a high school graduate or equivalent.
2. Sufficient high school math and science to make success in the program likely. (The Institute operates a Programmed Materials Laboratory in which persons with mathematics or science deficiencies may do make-up work; deficiencies must be removed prior to registration for a course of study.)
3. Must demonstrate aptitude for technician training as determined by standard tests. These tests will aid in student selection, placement, and guidance.
4. Must be in acceptable condition of physical and mental health. Medical examination may be required at the discretion of the administration.
5. A personal interview is required.

DIPLOMA PROGRAMS

1. High school graduation, or possession of a high school equivalency certificate, is preferred; however, persons beyond age 16 with eight or more high school units will be considered.
2. Applicants should have one unit of high school algebra or the equivalent for some curriculums.
3. Must demonstrate aptitude for vocational training as demonstrated by standardized tests.
4. For Medical Laboratory Assistant, high school graduation, or possession of a high school equivalency certificate, is mandatory.
5. A personal interview is required.

CERTIFICATE PROGRAMS

1. Ability to profit from the training offered.
2. A personal interview is required.

*For further information refer to Technical and Trade Divisions.

TRANSFER OF CREDITS

Holding Technical Institute will accept credits from all North Carolina Department of Community College institutions and from other recognized institutions of higher learning when such credit acceptance is deemed to be in the best interest of the student. If the student wishes to receive credit for a course other than what has been granted, he must make application for such credit prior to registration through the Registrar.

EXPENSES, PAYMENTS, REFUNDS

Expenses

All tuition costs are established by the State Board of Education. Currently tuition is charged at the following rates for all curriculum courses.

North Carolina Students:

Full time	.....	\$32.00 per quarter
Part Time	.....	\$2.50 per quarter hour credit
Activity fee	.....	\$2.00 per quarter
Graduation fee (diploma)	.....	\$11.00
Graduation fee (degree)	.....	\$14.00

*Out-of-state Students:

Full time	.....	\$80.00 per quarter
Part time	.....	\$6.25 per quarter hour credit

Textbooks are purchased by the student as they are needed. Books cost on the average \$100.00 per year.

The Institute cannot assume the responsibility for injuries or losses sustained on or off campus by any student. It is required, for the protection of the student, that accident insurance be purchased. This insurance is available to the student at registration at a current cost of \$3.00 per academic year.

*Out-of-State Students

Out-of-state students are admitted under the same regulations as others. Tuition and fees are established by the State Board of Education. The most recent ruling places these charges at two and one-half times the amount charged North Carolina Students.

1. A person twenty-one years of age or older is not deemed eligible for the lower tuition rate unless he has maintained his legal residence in North Carolina for at least the six months next preceding the date of his enrollment in an institution of higher education in this state.

2. The legal residence of a person under twenty-one years of age at the time of his first enrollment in an institution of higher education in this state is that of

his parents, surviving parent, or legal guardian. In cases where parents are divorced or legally separated, the legal residence of the father will control unless custody of the minor has been awarded by court order to the mother or to a legal guardian other than a parent. No claim of residence in North Carolina based upon residence of a guardian in North Carolina will be considered if either parent is still living unless the action of the court appointing the guardian antedates the student's first enrollment in a North Carolina institution of higher education by at least twelve months.

3. The residence status of any student is determined as of the time of his first enrollment in an institution of higher education in North Carolina and may not thereafter be changed except: (a) in the case of a nonresident minor student at the time of his first enrollment whose parents have subsequently established legal residence in North Carolina; and (b) in the case of a resident who abandons his legal residence in North Carolina. In either case, the appropriate tuition rate will become effective at the beginning of the quarter or term next following the date of change of residence status.

4. The legal residence of a wife follows that of her husband, except that a woman student currently enrolled in this institution as a resident may continue as a resident even though she may marry a nonresident.

5. Military personnel attached to military posts or reservations in North Carolina are not considered eligible for the lower tuition rate unless they have maintained a legal residence in the state for at least the six months preceding the date of first enrollment in an institution of higher education in the state.

6. Aliens lawfully admitted to the United States for permanent residence who have established a legal residence in North Carolina according to paragraphs numbered 1, 2, or 4, above, are eligible for the lower tuition rate.

7. Ownership of property in or payment of taxes to the State of North Carolina apart from legal residence will not qualify one for the lower tuition rate.

The furnishing of incomplete or incorrect information regarding residence may result in the student's dismissal from the Institute. The Registration Office determines each student's residence status on the basis of existing information and interpretation of regulations.

Payments

Each officially admitted student to a course of study will make a \$15.00 tuition deposit at a time indicated by the Institute. This deposit is non-refundable except in cases where the school is unable to admit the person or unable to offer the course applied for, but is applied to the first quarter's tuition charge upon registration.

No student will be permitted to graduate, nor will a transcript be issued until all financial obligations to the school are satisfied.

Refunds

Refunds of two-thirds the quarter's tuition may be made in cases where a student is compelled by unavoidable reasons to withdraw during the first ten (10) calendar days of any quarter. No refunds are made after the ten-day period except in cases where the student is a veteran or war orphan. Veterans or war orphans receiving benefits under U.S. Code, Title 38, Chapters 33 and 35, can be refunded the prorata portion of the tuition fee not used up at the time of withdrawal of such students.

STUDENT FINANCIAL AID

The financial aid program exists to ensure that no qualified student will be denied the opportunity to attend Holding Technical Institute because of economic disadvantages. Through a program of loans, grants, scholarships, work study positions and part-time employment, students enrolled in Holding are able to supplement their own resources and the resources of their families in order to complete a course of study. Upon satisfactory completion of the financial aid application procedures, each student is automatically considered for any of the various types of aid described below.

1. College Work-Study Program

The Institute participates in the College Work-Study Program of the Economic Opportunity Act of 1964. The purpose of the program is to expand part-time employment opportunities for students, particularly those from low-income families, who are in need of the earnings from part-time employment in order to pursue a course of study at an institute of higher education. Students may work for the school for a maximum of 15 hours per week while in school. The extent of this program is determined by the amount of funds available.

2. Plan Assuring College Education in North Carolina (PACE I.N.C.)

An off-campus component of the College Work-Study Program is the PACE program which provides for summer employment for students who are not enrolled in summer school or who are planning to enter the Institute in the fall. This employment is provided for the purpose of meeting the cost of education, and a certain portion of net summer employment earnings under the program will be applied against academic year charges.

3. Educational Opportunity Grants

The Institute participates in the Educational Opportunity Grants Program which was established by the Higher Education Act of 1965. The purpose of the program is to provide grants to students of exceptional financial need, who, for lack of financial means of their own or of their families, would be unable to enter or remain in institutions of higher education without such assistance.

4. Law Enforcement Education Program

The LEEP Program is authorized by the Omnibus Crime Control and Safe Streets Act of 1968. The purpose of this program is to improve the effectiveness of the nation's criminal justice system by increasing the educational level of law enforcement personnel. Grants, which cover the cost of tuition and fees, are provided to allow in-service law enforcement officers to continue their education at the college level.

5. Vocational Rehabilitation

Vocational Rehabilitation is a program operated through the Division of Vocational Rehabilitation in cooperation with the North Carolina Department Administration. The Division is financed by State and Federal Funds. Vocational Rehabilitation offers such services as are necessary to enable a physically or mentally employment-handicapped person to become self-supporting. Financial

assistance is available for eligible handicapped persons. If a prospective student has a physical disability or is limited in his activity because of a disability, he should contact the Division of Vocational Rehabilitation office nearest him.

6. "G.I. Bill" The Veterans Readjustment Benefits Act of 1966

All programs being offered by the Institute at this time are approved for training under the so-called "Cold War G.I. Bill." Veterans desiring to train under the benefits of this bill must first establish their eligibility with the Veterans Administration. In general, veterans who served in the Armed Forces since January 31, 1955, and who are discharged under conditions other than dishonorable, qualify for training under the bill. The amount of training permitted is determined by the number of months of service. Certain servicemen on active duty are also eligible for schooling under this bill. Interested servicemen should contact their Education Officer.

The veteran is admitted under the same admission requirements as other students. He pays tuition and attends school under the same regulations as others. The only difference between the veteran and other students is that he is paid monthly by the Veterans Administration, an amount determined by the hours attended and the number of dependents he has.

To be classified as a full-time student, a veteran must attend 25 hours per week in a technical course and 30 hours per week in a trade program.

7. College Foundation Incorporated

The Institute belongs to the North Carolina College Foundation, Incorporated, which administers the Insured Student Loan Plan and the Bryan Student Loan Plan. The maximum loan available per student is \$1,500 per academic year. Repayment shall begin nine months after graduation. Extension of the repayment period may be granted for military service, peace corps, or graduate study.

SCHOLARSHIPS

Scholarships are available to students in vocational, technical, business and health-related fields. These scholarships are awarded annually by various civic clubs, professional organizations, industrial groups and hospital organizations in varying amounts up to a maximum of \$600.00. Most of these scholarships are competitive. Although scholarships are awarded primarily upon the basis of financial need, a student applying may have to meet certain defined requirements to qualify for specific awards. Evidence of scholastic potential and achievement and good character is also generally required.

STUDENT CHAPTERS OF PROFESSIONAL ORGANIZATIONS

Holding Technical Institute provides for and encourages the formation of professional student organizations on campus. It is felt that, through activities of a professional nature, the student has the opportunity to mature and enhance his general understanding of the problems he will encounter in the world of work.

ASCET (American Society of Certified Engineering Technicians)

The purpose of the organization is to develop the beginning student's interest in the engineering technician profession; to keep the students informed of the vital role that engineering technicians occupy in the engineering and scientific team; and to direct the graduating senior toward steps to obtain certification and membership in ASCET.

The chapter is composed of those students who are enrolled in one of the engineering technology curriculums leading to the Associate in Applied Science Degree.

DPMA (Data Processing Management Association)

The student chapter of the Data Processing Management Association was formed at the Institute to assist the students in developing a better understanding of the nature and functions of data processing; to promote the study of technical methods of data processing with a view to their improvement; to foster among students a better understanding of the vital role of business data processing, the proper relationship of data processing to management, and the necessity for a professional attitude among data processors.

Regular student membership shall be granted to any full-time student who is a candidate for an Associate in Applied Science Degree and whose degree is consistent with the desire to enter the field of business data processing.

PHI BETA LAMBDA

Phi Beta Lambda is a professional business organization open for membership to any student regularly enrolled in a business curriculum. The organization was chartered to provide a medium for the student to improve his scholarship and develop qualities that will enable him to participate effectively in business, professional, and community life.

STUDENT REGULATIONS AND CONDUCT

1. The student body is expected at all times to display the qualities of courtesy and integrity that characterize the behavior of ladies and gentlemen. Conduct which would reflect unfavorably on the student and/or Institute, whether at the Institute or elsewhere, will be dealt with by the Administration and could result in the termination of the student or students responsible.

2. Students are expected to make satisfactory progress with their training.

3. Each student is held responsible for information published through notices and announcements placed on the bulletin boards.

4. Students who negligently lose, damage, destroy, sell, or otherwise dispose of property placed in their possession or entrusted to them will be charged for the full extent of the damage or loss and are subject to disciplinary action.

5. Under no condition will alcoholic beverages, narcotics or liquors be permitted in or on Institute property. No one under the influence of alcohol or narcotics will be allowed on the premises. Additionally, the introduction, possession, sale or use of liquor, narcotics or hallucinogenic drugs are considered grounds for dismissal.

6. Students who engage in such acts as stealing, gambling, profane language, personal combat and possession of firearms or dangerous weapons are liable to disciplinary action.

7. Personal cleanliness and property cleanliness are important phases of training. Students will be expected to make use of the disposal containers in the halls and in all areas of shops and classrooms.

GRADING SYSTEM

A letter grade is used to indicate quality of a student's work in a course. Grade points are assigned for each letter so that a grade-point average can be calculated. Students' grades are reported at the end of each quarter. The grading system is as follows:

Grade	Explanation	Grade Points Per Credit
A (93-100)	Excellent	4
B (85-92)	Above Average	3
C (78-84)	Average	2
D (70-77)	Below Average	1
F (0-69)	Failure	
I	Incomplete	
WP	Withdrew Passing	
WF	Withdrew Failing	

A grade of Incomplete (I) will be given only when circumstances justify additional time needed to complete a course. An incomplete must be removed by the end of the fifth full academic week of the quarter immediately following that in which the incomplete was incurred. If it is not removed by this date, the incomplete will be recorded as an "F" on the permanent record of the student.

Quarterly grade reports are mailed to the students and parents shortly after the end of the quarter.

In order to be eligible for graduation, a student must complete all prescribed courses for the curriculum in which he/she is enrolled. Students in the Associate Degree programs must have a quality point average of 2.0 or better based on the number of quality points earned divided by the number of credit hours attempted. Students pursuing vocational diploma programs must achieve a quality point average of 1.5.

COUNSELING SERVICES

Qualified counselors are available to assist students in selecting an appropriate course of study, to provide occupational and educational information, and to discuss scholastic or personal problems which may arise.

HOUSING

The Institute does not have housing facilities, but students should have no difficulty in locating satisfactory housing. Some places provide room and board at moderate rates. Students and landlords should have a complete understanding with regard to rental conditions so that there will be no misunderstanding concerning such details.

ATTENDANCE

This school has no system for allowing absences from classes. Absences are a serious deterrent to good scholarship and it is impossible to receive instruction, obtain knowledge, or gain skills when absent. As all students are adults with many responsibilities, an occasional absence from class might be absolutely necessary; however, such absences in no way lessen the student's responsibility to contact the instructor for any missed assignments. All lab absences must be made up, and the students are held responsible for all class work.

PROBATION AND SUSPENSION

At the end of each quarter's work, the student's quality point average will be computed. Those students whose quality point average falls below 1.0 will be placed on academic probation. If the student's subsequent quarter's work should also fail to meet this minimum standard, he shall be counseled and it may be decided he should change to another curriculum or that he should take remedial work in addition to his regular course work.

WITHDRAWAL

A student who finds it necessary to withdraw from the Institute must confer with a counselor, and secure a withdrawal slip. Withdrawal is not considered official until this procedure has been followed. If the student should find it necessary to withdraw and not be able to present himself at the office of the Dean of Students, he should advise the Institute in writing of his decision to withdraw, stating his reason or reasons. A grade of WP or WF will be recorded for each subject in which the student is enrolled.

DRAFT DEFERMENT

Full-time curriculum students attending the Institute are eligible for an occupational deferment under present Selective Service regulations. Students who require such deferments must request them at the time of registration, after which appropriate information will be furnished to their local draft boards. Present regulations provide that the school must notify the board at any time the student's attendance or quality of work becomes unsatisfactory.

PLACEMENT SERVICES

Every effort is made by school officials to help students find employment upon graduation. This is not to imply that the school guarantees employment to any student or employees to any employer. There is no charge to industry nor to students for this placement service.

TECHNICAL DIVISION



TECHNICAL DIVISION

Technicians are among the fastest growing occupational groups in the United States. In recent years, the needs of an expanding and increasingly-technical economy have greatly intensified the demand not only for engineers and scientists, but also for the technical workers who assist them. Technicians, as a rule, work directly with scientists and engineers. Their jobs require both knowledge and use of scientific and mathematical theory, and specialized education or training in some aspect of technology or science. Some jobs held by these technicians are supervisory and require both technical knowledge and the ability to supervise people.

In carrying out their assignments, engineering and science technicians frequently use complex electronic and mechanical instruments, experimental laboratory apparatus, and drafting instruments. These workers engage in virtually every aspect of engineering and scientific work. In research development, and design work, they conduct experiments or tests; set up, calibrate, and operate instruments; and make calculations. They also assist scientists and engineers in developing experimental equipment and models by making drawings and sketches and frequently do some design work.

Technicians also work in jobs related to production and may aid in the various phases of production operations, such as working out specifications for materials and methods of manufacture, devising tests to insure quality control of products, or making time-and-motion studies (timing and analyzing the worker's movements) designed to improve the efficiency of a particular operation. They may also perform liaison work between engineering and production or other departments.

Credit hours granted in the various technical programs are not transferable to other institutions except as an institution may determine that a particular course and credits are applicable to a curriculum offered by that school.

The Associate in Applied Science degree is awarded to students who complete a technical program. To be eligible for the degree, a student must maintain satisfactory grades in all laboratory and class subjects.

COURSES OF STUDY

Engineering Related Programs

- Architectural Technology*
- Chemical Technology*
- Civil Engineering Technology*
- Electrical Engineering Technology*

*Cooperative Education Curricula

Electromechanical Technology*
Electronic Engineering Technology*
Industrial Engineering Technology*

Business Related Programs

Accounting
Business Administration
Business Data Processing
Court Reporting
Secretarial Science (Executive, Legal, Medical Option)

Public Service Programs

Police Science Technology
Traffic Engineering Technology

COOPERATIVE EDUCATION

The Cooperative Education Program at the Institute offers the student an opportunity to gain practical experience purposefully intermingled with a gradually expanding academic curriculum. This program was initiated in the Civil Engineering Technology program.

The program operates on alternating three-month (quarter) cycles of work experience and classroom instruction. After the student has been enrolled for from two to three quarters, dependent on the curriculum, he is assigned to either section A or section B. During the fourth quarter, while Section A is in the classroom, Section B is working in a cooperative work assignment. Then, at the end of each three months (one quarter), the sections rotate so that each student has a minimum of two to three quarters of work experience.

The year-round schedule permits each student a meaningful professionally-related experience before graduation. Thus, he obtains a first-hand knowledge of realistic work practices and opportunities. Each student is thereby afforded an opportunity to earn from \$2,500 to \$5,000 while enrolled at the Institute and a realistic chance to test career interests and aptitudes.

At this time, not all programs are on the cooperative basis; those that are may be identified by the curriculum listing. Due to conditions beyond

*Cooperative Education Curricula

control of the Institute, programs offered under the Cooperative program are subject to being offered **ONLY** as regular curriculums at the discretion of the Institute.

EDUCATIONAL REQUIREMENTS

Engineering Related Technology Curriculums

1. High School Graduation; or approved equivalent education
2. Two units of mathematics — Algebra I and Geometry or equivalent recommended *

Business Technology Curriculum

1. High School Graduation; or approved equivalent education
2. One unit of Algebra, or equivalent, recommended for the Business Data Processing *

Public Service Curriculums

1. High School Graduation; or approved equivalent education
2. Two units of mathematics — Algebra I and Geometry or equivalent recommended for Traffic Engineering Technology *

ARCHITECTURAL TECHNOLOGY

This program is designed to provide the individual with knowledge and skills that will lead to employment in the field of architectural drafting and afford opportunity for rapid advancement in technical knowledge and proficiency. Technical courses are included which will enable the graduate to advance into related areas of work as job experience is obtained.

Graduates of the proposed curriculum would be prepared to enter an architect's office as "technicians" with the ability to turn the architect's designs into working drawings for the building industry. Graduates should be competent draftsmen, well informed concerning the building industry in general, the operation of architects' offices, and should have a knowledge of materials and techniques of construction. Their training will include an understanding of the mechanical and electrical aspects of buildings. Basic training in oral and written communication will give graduates a background for developing their potential in broader aspects of architectural practice, such as specification writing and supervision of construction.

Architectural drafting technicians are concerned with turning the architect's design sketches into complete and accurate working plans and detail drawings for construction purposes. They may prepare floor plans, elevation drawings, construction details, mechanical equipment layouts, door, window and room schedules, and site plans. Drafting technicians will be involved in work requiring a knowledge of building codes, specifications and contract documents.



ARCHITECTURAL TECHNOLOGY

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-MAT 101	Technical Mathematics I	5	0	5
T-PHY 101	Physics: Properties of Matter	3	2	4
T-DFT 106	Architectural Drafting I	2	6	4
T-CIV 105	Architectural Materials & Methods	3	3	4
		16	11	20
SECOND QUARTER				
T-ENG 102	Composition	3	0	3
T-MAT 102	Technical Mathematics II	5	0	5
T-PHY 104	Physics: Light & Sound	3	2	4
T-DFT 107	Architectural Drafting II	2	6	4
T-AHR 106	Architectural Mechanical Equipment	3	3	4
		16	11	20
THIRD QUARTER				
T-ENG 103	Report Writing	3	0	3
T-MAT 103	Technical Mathematics III	5	0	5
T-PHY 103	Physics: Electricity	3	2	4
T-DFT 108	Architectural Drafting III	0	9	3
T-CIV 114	Statics	5	0	5
		16	11	20
FOURTH QUARTER (Section A)				
T-ENG 204	Oral Communication	3	0	3
T-CIV 216	Strength of Materials	3	2	4
T-DFT 220	Architectural Drafting IV	2	9	5
T-CIV 101	Surveying I	2	6	4
		10	17	16
FOURTH QUARTER (Section B)				
T-COP 100	Work Experience	0	40	4
FIFTH QUARTER (Section A)				
T-COP 100	Work Experience	0	40	4

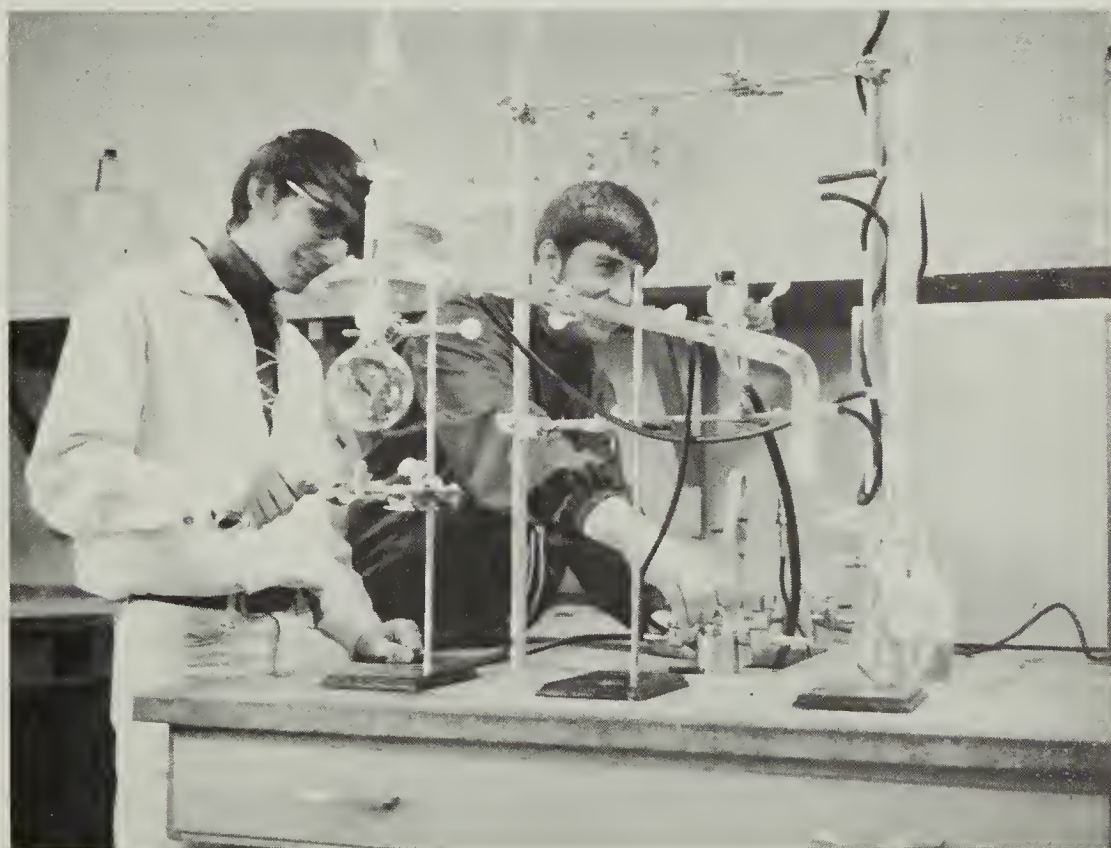
		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIFTH QUARTER (Section B)				
T-ENG 204	Oral Communication	3	0	3
T-CIV 216	Strength of Materials	3	2	4
T-DFT 220	Architectural Drafting IV	2	9	5
T-CIV 101	Surveying I	2	6	4
		10	17	16
SIXTH QUARTER (Section A)				
T-PSY 206	Applied Psychology	3	0	3
T-DFT 221	Architectural Drafting V	2	9	5
T-DFT 233	Office Practice Seminar	2	0	2
T-DFT 235	Codes, Specifications & Contract Documents	3	3	4
T-CIV 217	Construction Methods & Equipment	3	2	4
		13	14	18
SIXTH QUARTER (Section B)				
T-COP 101	Work Experience	0	40	4
SEVENTH QUARTER (Section A)				
T-COP 101	Work Experience	0	40	4
SEVENTH QUARTER (Section B)				
T-PSY 206	Applied Psychology	3	0	3
T-DFT 221	Architectural Drafting V	2	9	5
T-DFT 233	Office Practice Seminar	2	0	2
T-DFT 235	Codes, Specifications & Contract Documents	3	3	4
T-CIV 217	Construction Methods & Equipment	3	2	4
		13	14	18
EIGHTH QUARTER (Sections A and B)				
T-ECO 102	Economics	3	0	3
T-DFT 222	Architectural Drafting VI	2	9	5
T-DFT 236	Principles of Estimating and Field Inspecting	3	3	4
T-DFT 230	Structural Drafting	2	6	4
		10	18	16
GRADUATION REQUIREMENTS				
ACADEMIC		110 Hours Credit		
COOPERATIVE WORK EXPERIENCE		8 Hours Credit		
TOTAL GRADUATION REQUIREMENT		118 Hours Credit		

CHEMICAL TECHNOLOGY

The chemical industry touches directly or indirectly every phase of your life. Many of the basic things of modern living—plastics, drugs and medicines, paints and varnishes, explosives, fertilizers, synthetic fibers, automobiles, soaps, food and beverages, petroleum and rubber products, space capsules, and lunar spaceships, glass and ceramics — could not exist without the chemical industry.

The work done by “chemical technicians” — to use just one of the many titles by which they are known — has countless variations. But one characteristic common to all is that they require practical work and skills, involving the ability to put ideas into operation and to see that a project moves ahead. Nine chances out of ten, the work is performed as part of a team effort; technicians are engaged with other people in executing undertakings leading to a common goal.

The Chemical Technology program trains future technicians who will be essential members of a team including professional chemists, chemical engineers, and assistants. Their common task may involve research, design, development, production of chemical products or testing of raw material, processes and finished products. A technician may be called on to aid in installing and operating equipment, or may be asked to compute, tabulate, and analyze the results of experiments which could lead to an entirely new and valuable product.



CHEMICAL TECHNOLOGY

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-MAT 101	Technical Mathematics I	5	0	5
T-PHY 101	Physics: Properties of Matter	3	2	4
T-DFT 101	Technical Drafting I	0	6	2
T-CHM 111	General Chemistry I	3	4	5
		<u>14</u>	<u>12</u>	<u>19</u>
SECOND QUARTER				
T-ENG 102	Composition	3	0	3
T-MAT 102	Technical Mathematics II	5	0	5
T-PHY 102	Physics: Work Energy, Power	3	2	4
T-DFT 102	Technical Drafting II	0	6	2
T-CHM 112	General Chemistry II	3	4	5
		<u>14</u>	<u>12</u>	<u>19</u>
THIRD QUARTER				
T-ECO 102	Economics	3	0	3
T-ENG 103	Report Writing	3	0	3
T-MAT 103	Technical Mathematics III	5	0	5
T-PHY 103	Physics: Electricity	3	2	4
T-CHM 121	Quantitative Chemical Analysis I	3	6	5
		<u>17</u>	<u>8</u>	<u>20</u>
FOURTH QUARTER (Section A)				
T-PSY 206	Applied Psychology	3	0	3
T-ENG 204	Oral Communication	3	0	3
T-CHM 222	Quantitative Chemical Analysis II	2	9	5
T-CHM 227	Physical Chemistry	3	2	4
T-MAT 201	Technical Mathematics IV	5	0	5
		<u>16</u>	<u>11</u>	<u>20</u>
FOURTH QUARTER (Section B)				
T-COP 100	Work Experience	0	40	4
FIFTH QUARTER (Section A)				
T-COP 100	Work Experience	0	40	4

		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIFTH QUARTER (Section B)				
T-PSY 206	Applied Psychology	3	0	3
T-ENG 204	Oral Communication	3	0	3
T-CHM 222	Quantitative Chemical Analysis II	2	9	5
T-CHM 227	Physical Chemistry	3	2	4
T-MAT 201	Technical Mathematics IV	5	0	5
		16	11	20

SIXTH QUARTER (Section A)

T-CHM 231	Organic Chemistry I	3	6	5
T-CHM 241	Industrial Chemical Analysis I	3	9	6
T-PHY 231	Fluid Mechanics	3	0	3
		9	15	14

SIXTH QUARTER (Section B)

T-COP 101	Work Experience	0	40	4
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SEVENTH QUARTER (Section A)

T-COP 101	Work Experience	0	40	4
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SEVENTH QUARTER (Section B)

T-CHM 231	Organic Chemistry I	3	6	5
T-CHM 241	Industrial Chemical Analysis I	3	9	6
T-PHY 231	Fluid Mechanics	3	0	3
		9	15	14

EIGHTH QUARTER (Sections A and B)

T-CHM 232	Organic Chemistry II	3	6	5
T-CHM 242	Industrial Chemical Analysis II	3	12	7
T-MAT 214	Statistics	5	0	5
		11	18	17

GRADUATION REQUIREMENTS

ACADEMIC	109 Hours Credit
MINIMUM COOPERATIVE WORK EXPERIENCE	8 Hours Credit
TOTAL GRADUATION REQUIREMENT	117 Hours Credit

CIVIL ENGINEERING TECHNOLOGY

The Civil Technology program trains technicians who will work with skilled craftsmen and engineers in performing the various functions included in the broad field of construction.

The student receives instruction in the theory and practice of surveying, through route surveys, highway surveying, and project layouts. Instruction is also given in lines and grades for foundations, building construction, bridge layout, and sewer and pipe line surveys.

After receiving a thorough first-year background in mathematics through introductory calculus, and physics through statics, second-year students take laboratory courses which apply this knowledge to tests on soils, concrete, asphalt, metals, and wood.

Another sequence prepares them for contracting work with courses in methods and equipment, planning, specifications, and estimating.



CIVIL ENGINEERING TECHNOLOGY

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-MAT 101	Technical Mathematics I	5	0	5
T-PHY 101	Physics: Properties of Matter	3	2	4
T-DFT 101	Technical Drafting I	0	6	2
T-CIV 101	Surveying I	2	6	4
		<u>13</u>	<u>14</u>	<u>18</u>
SECOND QUARTER				
T-ENG 102	Composition	3	0	3
T-MAT 102	Technical Mathematics II	5	0	5
T-PHY 102	Physics: Work, Energy, Power	3	2	4
T-DFT 102	Technical Drafting II	0	6	2
T-CIV 114	Statics	5	0	5
		<u>16</u>	<u>8</u>	<u>19</u>
THIRD QUARTER (Section A)				
T-ENG 103	Report Writing	3	0	3
T-MAT 103	Technical Mathematics III	5	0	5
T-PHY 103	Physics: Electricity	3	2	4
T-CIV 102	Surveying II	2	6	4
T-CIV 216	Strength of Materials	3	2	4
		<u>16</u>	<u>10</u>	<u>20</u>
THIRD QUARTER (Section B)				
T-COP 100	Work Experience	0	40	4
FOURTH QUARTER (Section A)				
T-COP 100	Work Experience	0	40	4
FOURTH QUARTER (Section B)				
T-ENG 103	Report Writing	3	0	3
T-MAT 103	Technical Mathematics III	5	0	5
T-PHY 103	Physics: Electricity	3	2	4
T-CIV 102	Surveying II	2	6	4
T-CIV 216	Strength of Materials	3	2	4
		<u>16</u>	<u>10</u>	<u>20</u>

		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIFTH QUARTER (Section A)				
T-ENG 204	Oral Communication	3	0	3
T-CIV 201	Properties of Engineering Materials	2	3	3
T-CIV 103	Surveying III	2	6	4
T-CIV 218	Plain Concrete	3	3	4
T-CIV 217	Construction Methods & Equipment	3	2	4
		13	14	18
FIFTH QUARTER (Section B)				
T-COP 101	Work Experience	0	40	4
SIXTH QUARTER (Section A)				
T-COP 101	Work Experience	0	40	4
SIXTH QUARTER (Section B)				
T-ENG 204	Oral Communication	3	0	3
T-CIV 201	Properties of Engineering Materials	2	3	3
T-CIV 103	Surveying III	2	6	4
T-CIV 218	Plain Concrete	3	3	4
T-CIV 217	Construction Methods & Equipment	3	2	4
		13	14	18
SEVENTH QUARTER (Section A)				
T-PSY 206	Applied Psychology	3	0	3
T-CIV 220	Construction Planning	2	3	3
T-CIV 221	Reinforced Concrete Construction	3	2	4
T-CIV 202	Properties of Soils	2	3	3
T-CIV 223	Codes, Contracts, & Specifications	3	0	3
T-EDP 108	FORTRAN Programming	3	4	5
		16	12	21
SEVENTH QUARTER (Section B)				
T-COP 102	Work Experience	0	40	4
EIGHTH QUARTER (Section A)				
T-COP 102	Work Experience	0	40	4

	Hours	Per	Week
Class	Lab	Quarter	Hours
			Credit

EIGHTH QUARTER (Section B)

T-PSY 206	Applied Psychology	3	0	3
T-CIV 220	Construction Planning	2	3	3
T-CIV 221	Reinforced Concrete Construction	3	2	4
T-CIV 202	Properties of Soils	2	3	3
T-CIV 223	Codes, Contracts, & Specifications	3	0	3
T-EDP 108	FORTTRAN Programming	3	4	5
		<u>16</u>	<u>12</u>	<u>21</u>

NINTH QUARTER (Section A)

T-ECO 102	Economics	3	0	3
T-CIV 225	Construction Estimates & Costs	3	6	5
T-CIV 227	Construction of Roads & Pavements	2	3	3
T-CIV 204	Surveying IV	2	6	5
		<u>10</u>	<u>15</u>	<u>16</u>

NINTH QUARTER (Section B)

T-ECO 102	Economics	3	0	3
T-CIV 225	Construction Estimates & Costs	3	6	5
T-CIV 227	Construction of Roads & Pavements	2	3	3
T-CIV 204	Surveying IV	2	6	5
		<u>10</u>	<u>15</u>	<u>16</u>

GRADUATION REQUIREMENTS

ACADEMIC	112 Hours Credit
MINIMUM COOPERATIVE WORK EXPERIENCE	12 Hours Credit
TOTAL GRADUATION REQUIREMENT	114 Hours Credit

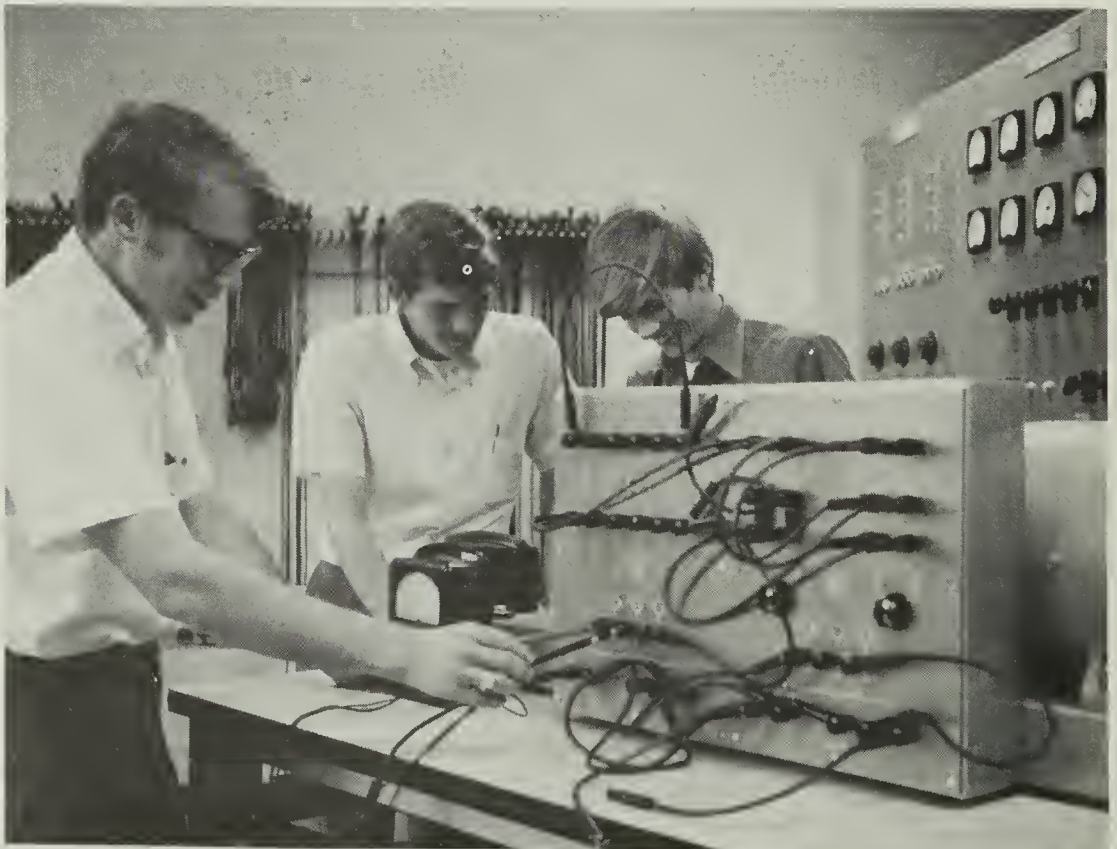
ELECTRICAL ENGINEERING TECHNOLOGY

The Electrical Engineering Technology program is a combination of technical- electrical courses, mathematics courses, science courses, and general academic courses that lead to the degree of Associate in Applied Science. The program is designed to prepare students for employment as electrical technicians in research laboratories, electronic industries, and in any industry that uses electrical power and/or electronic controls.

During the student's course of study, he will take courses in the fundamentals of electricity where he will learn: basic electric unit, Ohm's law, Kirchhoff's law, sine wave analysis. This basic course will be followed by a study of series and parallel resonant-circuit analysis, basic diode power supply analysis. The student will also take courses in electronic instruments and measurements, control devices, principles of direct-current generators and motors, alternating current generators, transformers, wye-delta starters, overload and overvoltage protection and sensing devices, rectification, and the planning design, and installation of electrical power systems.

The duties of the electrical technician could be: construction, testing, and troubleshooting, operation, and testing of electrical equipment in industries; sales and service of electrical equipment.

After experience and continued technical growth, graduates hold such positions as supervisor, manager, foreman, contractor, electrical estimator.



ELECTRICAL ENGINEERING TECHNOLOGY

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-MAT 101	Technical Mathematics I	5	0	5
T-PHY 101	Physics: Properties of Matter	3	2	4
T-DFT 160	Electronic Drafting	0	6	2
T-ELC 101	Fundamentals of Electricity I	3	6	5
		<hr/>	<hr/>	<hr/>
		14	14	19

SECOND QUARTER

T-ENG 102	Composition	3	0	3
T-MAT 102	Technical Mathematics II	5	0	5
T-PHY 102	Physics: Work, Energy, Power	3	2	4
T-MEC 160	Mechanisms I	3	2	4
T-ELC 102	Fundamentals of Electricity II	3	6	5
		<u>17</u>	<u>10</u>	<u>21</u>

THIRD QUARTER

T-MEC 161	Mechanisms II	3	2	4
T-ENG 103	Report Writing	3	0	3
T-MAT 103	Technical Mathematics III	5	0	5
T-ELN 101	Electronic Instruments & Measurements	1	6	3
T-ELN 105	Control Devices	3	6	5
		<u>15</u>	<u>14</u>	<u>20</u>

FOURTH QUARTER (Section A)

T-ENG 204	Oral Communication	3	0	3
T-EDP 108	FORTTRAN Programming	3	4	5
T-MAT 201	Technical Mathematics IV	5	0	5
T-PHY 104	Physics: Light and Sound	3	2	4
T-ELC 215	Electrical Machines	3	6	5
		<u>17</u>	<u>12</u>	<u>22</u>

FOURTH QUARTER (Section B)

T-COP 100	Work Experience	0	40	4
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		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIFTH QUARTER (Section A)				
T-COP 100	Work Experience	0	40	4
FIFTH QUARTER (Section B)				
T-ENG 204	Oral Communication	3	0	3
T-EDP 104	Introduction to Data Processing Systems	3	2	4
T-MAT 201	Technical Mathematics IV	5	0	5
T-PHY 104	Physics: Light and Sound	3	2	4
T-ELC 215	Electrical Machines	3	6	5
		17	10	21
SIXTH QUARTER (Section A)				
T-PSY 206	Applied Psychology	3	0	3
T-ELC 225	Electrical Controls & Circuits	3	3	4
T-ELN 208	Industrial Electronics	5	3	6
T-ELN 235	Industrial Instruments	3	6	5
		14	12	18
SIXTH QUARTER (Section B)				
T-COP 101	Work Experience	0	40	4
SEVENTH QUARTER (Section A)				
T-COP 101	Work Experience	0	40	4
SEVENTH QUARTER (Section B)				
T-PSY 206	Applied Psychology	3	0	3
T-ELC 225	Electrical Controls & Circuits	3	3	4
T-ELN 208	Industrial Electronics	5	3	6
T-ELN 235	Industrial Instruments	3	6	5
		14	12	18

	Hours	Per Week	Quarter
Class	Lab	Hours	Credit

EIGHTH QUARTER (Sections A and B)

T—ECO 102	Economics	3	0	3
T—ELC 235	Planning Electrical Installations	5	2	6
T—ELC 230	Electrical Power Systems	3	2	4
T—ELC 220	Electrical Instrumentation	3	2	4
T—ELC 240	Electrical Analysis	2	4	4
		<u>16</u>	<u>10</u>	<u>21</u>

GRADUATION REQUIREMENTS

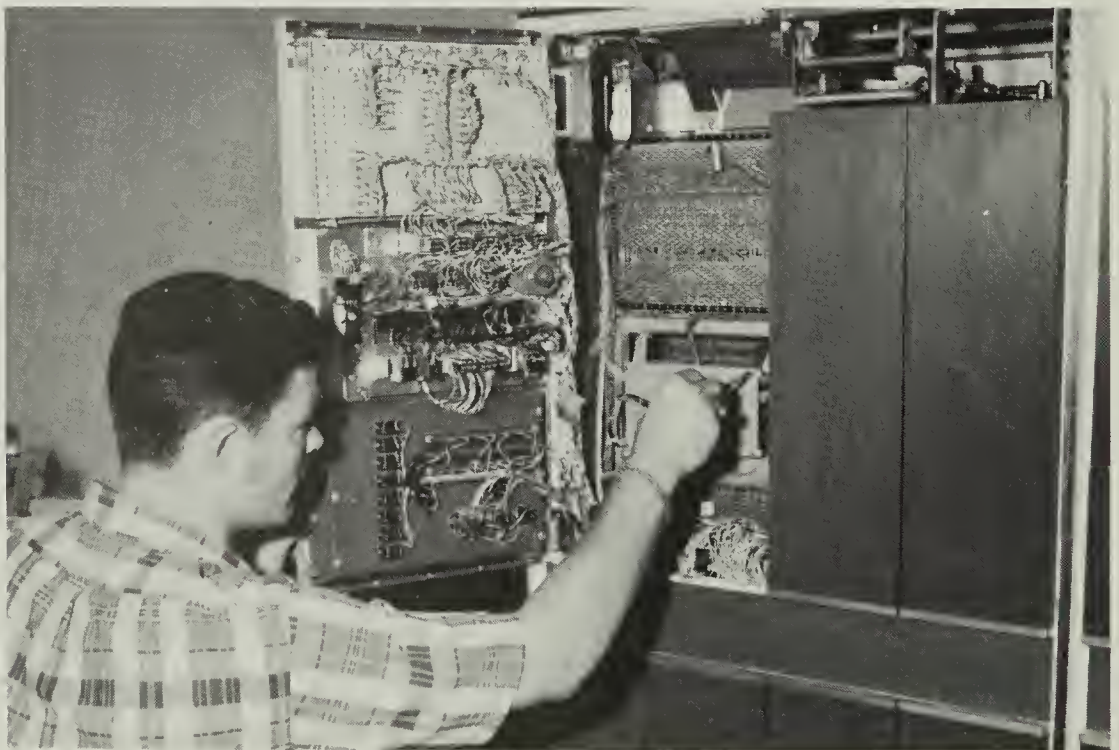
ACADEMIC	121 Hours Credit
MINIMUM COOPERATIVE WORK EXPERIENCE	8 Hours Credit
TOTAL GRADUATION REQUIREMENT	129 Hours Credit

ELECTROMECHANICAL TECHNOLOGY*

The purpose of the Electromechanical Technology curriculum is to produce a competent electromechanical technician. The technician must be capable of working and communicating directly with engineers and production personnel in his specialized work, of satisfactorily performing for his employer and of growing into positions of increased responsibility.

The curriculum has been developed to produce this type of graduate. Each course has been developed specifically to contribute to the objective stated in the purpose. A close correlation between the courses and in inter-disciplinary approach within each course is utilized to assure depth of understanding as required of the electromechanical technician.

The technical content of the curriculum is broad in scope in the diverse areas of applied Electromechanical Technology. This requires a firm foundation in electricity, electronics and the fundamentals of mechanics during the first year of study. The second year of study involves work in other subject matter areas directly related to the practical application of this foundation knowledge in such areas as mechanisms, data storage, logic devices, input and output devices, digital computing systems, and control systems. The knowledge acquired in the study of these courses is supplemented by practical application and experience developed through carefully planned laboratory exercises.



*May not be offered as a Cooperative Program in 1970-71 Academic Year.

ELECTROMECHANICAL TECHNOLOGY

CURRICULUM BY QUARTERS

		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-MAT 101	Technical Mathematics I	5	0	5
T-PHY 101	Physics: Properties of Matter	3	2	4
T-ELC 101	Fundamentals of Electricity I	3	6	5
T-DFT 160	Electronic Drafting	0	6	2
		<u>14</u>	<u>14</u>	<u>19</u>

SECOND QUARTER

T-ENG 102	Composition	3	0	3
T-MAT 102	Technical Mathematics II	5	0	5
T-MEC 160	Mechanisms I	3	2	4
T-PHY 102	Physics: Work, Energy, Power	3	2	4
T-ELC 102	Fundamentals of Electricity II	3	6	5
		<u>17</u>	<u>10</u>	<u>21</u>

THIRD QUARTER

T-ENG 103	Report Writing	3	0	3
T-MAT 103	Technical Mathematics III	5	0	5
T-ELN 105	Control Devices	3	6	5
T-EDP 104	Introduction to Data Processing Systems	3	2	4
T-MEC 161	Mechanisms II	3	2	4
		<u>17</u>	<u>10</u>	<u>21</u>

FOURTH QUARTER (Section A)

T-ELM 201	Digital Computer Fundamentals	3	6	6
T-ELM 202	Electromechanical Components	3	4	5
T-ENG 204	Oral Communication	3	0	3
T-ELM 203	Control Systems I	3	2	4
T-PHY 104	Physics: Light and Sound	3	2	4
		<u>15</u>	<u>14</u>	<u>22</u>

FOURTH QUARTER (Section B)

T-COP 100	Work Experience	0	40	4
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FIFTH QUARTER (Section A)

T- COP 100	Work Experience	0	40	4
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		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIFTH QUARTER (Section B)				
T-ELM 201	Digital Computer Fundamentals	3	6	6
T-ELM 202	Electromechanical Components	3	4	5
T-ENG 204	Oral Communication	3	0	3
T-ELM 203	Control Systems I	3	2	4
T-PHY 104	Physics: Light and Sound	3	2	4
		<u>15</u>	<u>14</u>	<u>22</u>

SIXTH QUARTER (Section A)

T-ELM 211	Digital Computing Systems I	3	4	5
T-ELM 212	Control Systems II	3	6	6
T-ELM 213	Input and Output Devices	3	6	6
T-ECO 102	Basic Economics	3	0	3
		<u>12</u>	<u>16</u>	<u>20</u>

SIXTH QUARTER (Section B)

T-COP 101	Work Experience	0	40	4
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SEVENTH QUARTER (Section A)

T-COP 101	Work Experience	0	40	4
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SEVENTH QUARTER (Section B)

T-ELM 211	Digital Computing Systems I	3	4	5
T-ELM 212	Control Systems II	3	6	6
T-ELM 213	Input and Output Devices	3	6	6
T-ECO 102	Basic Economics	3	0	3
		<u>12</u>	<u>16</u>	<u>20</u>

EIGHTH QUARTER (Sections A and B)

T-ELM 221	Digital Computing Systems II	3	4	5
T-ELM 222	Electromechanical Systems Evaluation and Analysis	2	4	4
T-ELM 223	Storage Principles and Devices	3	4	5
T-ELM 224	Practicum in Electromechanical Technology	0	6	3
T-PSY 206	Applied Psychology	3	0	3
		<u>11</u>	<u>18</u>	<u>20</u>

GRADUATION REQUIREMENTS

ACADEMIC	123 Hours Credit
MINIMUM COOPERATIVE WORK EXPERIENCE	8 Hours Credit
TOTAL GRADUATION REQUIREMENT	131 Hours Credit

ELECTRONIC ENGINEERING TECHNOLOGY

A sound core of courses in electronics and related technical subjects provides a solid foundation upon which to build a career in fields involving computers, missiles, atomic energy, telemetry, or instrumentation. Electronic Engineering Technicians are found working along with scientists and engineers at all levels of research, development, planning and production in nearly all major industries. A breadth of subject matter in oral and written communication, mathematics, physics, and similar subject areas prepares the technician to effectively function at the level required.

The opportunities open to the graduate of the Electronic Engineering Technology curriculum are extensive in scope and varied in number. Opportunities are increasing each day. Sample job titles are: Communications Systems Engineer, Customer Service Engineer, Electronic Field Engineer, Junior Engineer, Technical Aide, Engineering Aide, Technical Sales Representative, Computer Technician, Technical Writer.

Careers that can offer the challenge of one in Electronic technology are limited. The curriculum is designed to prepare the technician to take advantage of these opportunities.



ELECTRONIC ENGINEERING TECHNOLOGY

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-MAT 101	Technical Mathematics I	5	0	5
T-PHY 101	Physics: Properties of Matter	3	2	4
T-DFT 160	Electronic Drafting	0	6	2
T-ELC 101	Fundamentals of Electricity I	3	6	5
		<u>14</u>	<u>14</u>	<u>19</u>
SECOND QUARTER				
T-ENG 102	Composition	3	0	3
T-MAT 102	Technical Mathematics II	5	0	5
T-PHY 102	Physics: Work, Energy, Power	3	2	4
T-MEC 160	Mechanisms I	3	2	4
T-ELC 102	Fundamentals of Electricity II	3	6	5
		<u>17</u>	<u>10</u>	<u>21</u>
THIRD QUARTER				
T-MEC 161	Mechanisms II	3	2	4
T-ENG 103	Report Writing	3	0	3
T-MAT 103	Technical Mathematics III	5	0	5
T-ELN 101	Electronic Instruments and Measurements	1	6	3
T-ELN 105	Control Devices	3	6	5
		<u>15</u>	<u>14</u>	<u>20</u>
FOURTH QUARTER (Section A)				
T-EDP 104	Introduction to Data Processing Systems	3	2	4
T-ENG 204	Oral Communication	3	0	3
T-MAT 201	Technical Mathematics IV	5	0	5
T-PHY 104	Physics: Light and Sound	3	2	4
T-ELN 205	Applications of Vacuum Tubes and Transistors	3	6	5
		<u>17</u>	<u>10</u>	<u>21</u>
FOURTH QUARTER (Section B)				
T-COP 100	Work Experience	0	40	0
FIFTH WEEK (Section A)				
T-COP 100	Work Experience	0	40	0

		Hours Per Week				
		Class	Lab	Quarter		
				Hours		
				Credit		
FIFTH QUARTER (Section B)						
T—EDP 108	FORTTRAN Programming	3	4	5		
T—ENG 204	Oral Communication	3	0	3		
T—MAT 201	Technical Mathematics IV	5	0	5		
T—PHY 104	Physics: Light and Sound	3	2	4		
T—ELN 205	Applications of Vacuum Tubes	3	6	5		
	and Transistors	17	12	22		

SIXTH QUARTER (Section A)

T-PSY 206	Applied Psychology	3	0	3
T-ELN 210	Semiconductor Circuit Analysis	3	3	4
T-ELN 214	Wave Shaping & Pulse Circuits I	2	3	3
T-ELN 235	Industrial Instrumentation	3	6	5
T-ELN 225	Transmission and Propagation	3	0	3
		14	12	18

SIXTH QUARTER (Section B)

T-COP 101	Work Experience	0	40	4
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SEVENTH QUARTER (Section A)

T-COP 101	Work Experience	0	40	4
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SEVENTH QUARTER (Section B)

T-PSY 206	Applied Psychology	3	0	3
T-ELN 210	Semiconductor Circuit Analysis	3	3	4
T-ELN 214	Wave Shaping & Pulse Circuits I	2	3	3
T-ELN 235	Industrial Instrumentation	3	6	5
T-ELN 225	Transmission and Propagation	3	0	3
		14	12	18

EIGHTH QUARTER (Sections A and B)

T-ECO 102	Economics	3	0	3
T-ELN 227	UHF and Microwave Systems	3	4	5
T-ELN 215	Wave Shaping & Pulse Circuits II	2	3	3
T-ELN 220	Electronic Systems	3	6	5
T-ELN 240	Digital Computers	3	3	4
		14	16	20

GRADUATION REQUIREMENTS

ACADEMIC	120 Hours Credit
MINIMUM COOPERATIVE WORK EXPERIENCE	8 Hours Credit
TOTAL GRADUATION REQUIREMENT	128 Hours Credit

INDUSTRIAL ENGINEERING TECHNOLOGY

The Industrial Engineering Technology Curriculum is designed for students who are interested in the manufacturing phase of industry. The curriculum provides basic training in the application of inspection, time and motion study, production planning, materials handling, plant layout, quality control, and cost of a modern manufacturing enterprise. The graduate of this curriculum should have a basic knowledge of engineering at the technology level with specific skills in performing industrial engineering functions. The student receives instruction in industrial safety, job analysis and evaluation, work measurement, and quality control of techniques. In addition, instruction in such related subjects as physics, technical drafting, manufacturing processes, and production planning is offered to students in this curriculum. Basic training in oral and written communications will give graduates a background for developing their potential in such areas as specification writing, and supervision.

The Industrial Engineering Technician studies and records time, motion, methods, and speed involved in performance of maintenance, production, clerical, and other work operations to establish standard production rate and to improve efficiency. He prepares charts, graphs, and diagrams to illustrate work flow, routing, floor layouts, building handling, and machine utilization.

The following are titles of positions held by graduates in Industrial Engineering Technology: methods analyst, production planner, inspector, quality control analyst, cost estimator, plant layout draftsman, foreman, and production scheduler. New firms moving into North Carolina and established firms expanding their facilities have generated an increased need for the person who has acquired skills in planning, operating, and controlling the operation of an industrial enterprise for its profitable and continued operation. Employment Outlook for Selected Occupations in North Carolina shows the need for an additional 2,030 persons trained as industrial engineering technicians, quality control technicians, and production planners, positions for which this curriculum was developed.

INDUSTRIAL ENGINEERING TECHNOLOGY

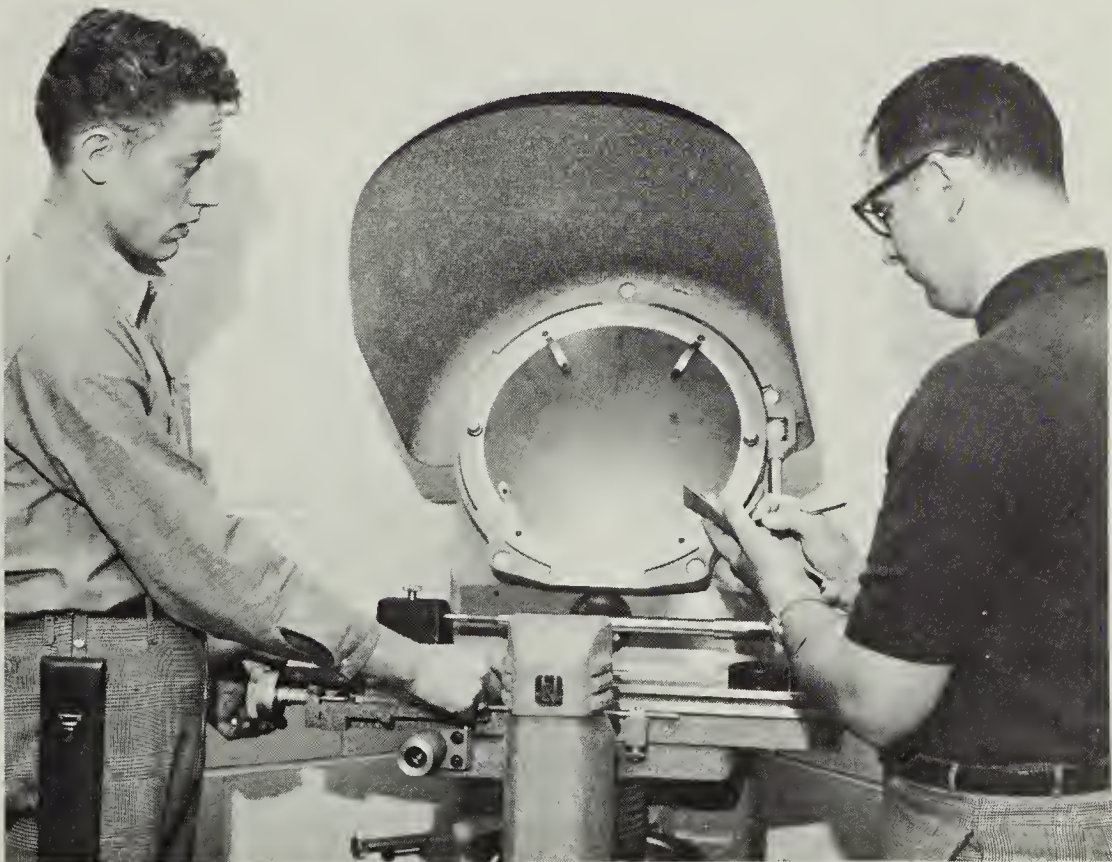
CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-PSY 206	Applied Psychology	3	0	3
T-DFT 101	Technical Drafting I	0	6	2
T-MAT 101	Technical Mathematics I	5	0	5
T-PHY 101	Physics: Properties of Matter	3	2	4
T-ISC 102	Industrial Safety	3	0	3
		<u>17</u>	<u>8</u>	<u>20</u>
SECOND QUARTER				
T-ENG 102	Composition	3	0	3
T-DFT 102	Technical Drafting II	0	6	2
T-MAT 102	Technical Mathematics II	5	0	5
T-PHY 102	Physics: Work, Energy, Power	3	2	4
T-MEC 111	Manufacturing Processes I	3	3	4
		<u>14</u>	<u>11</u>	<u>18</u>
THIRD QUARTER				
T-ENG 103	Report Writing	3	0	3
T-MAT 103	Technical Mathematics III	5	0	5
T-PHY 103	Physics: Electricity	3	2	4
T-MEC 112	Manufacturing Processes II	3	3	4
T-ISC 120	Principles of Industrial Management	3	3	3
		<u>17</u>	<u>8</u>	<u>20</u>
FOURTH QUARTER (Section A)				
T-ECO 102	Economics	3	0	3
T-ENG 204	Oral Communication	3	0	3
T-ISC 210	Job Analysis & Evaluation	3	2	4
T-ISC 231	Manufacturing Cycles	3	0	3
T-MAT 214	Statistics	5	0	5
T-BUS 123	Business Finance I	3	0	3
		<u>20</u>	<u>2</u>	<u>21</u>
FOURTH QUARTER (Section B)				
T-COP 100	Work Experience	0	40	4
FIFTH QUARTER (Section A)				
T-COP 100	Work Experience	0	40	4

		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIFTH QUARTER (Section B)				
T—ECO 102	Economics	3	0	3
T—ENG 204	Oral Communication	3	0	3
T—ISC 210	Job Analysis & Evaluation	3	2	4
T—ISC 231	Manufacturing Cycles	3	0	3
T—MAT 214	Statistics	5	0	5
T—BUS 123	Business Finance I	3	0	3
		<u>20</u>	<u>2</u>	<u>21</u>
SIXTH QUARTER (Section A)				
T—MEC 217	Engineering Materials & Processes	3	3	4
T—ISC 202	Quality Control	3	2	4
T—ISC 211	Work Measurement	3	2	4
T—MEC 213A	Production Planning I	3	3	4
T—EDP 104	Introduction to Data Processing	3	2	4
		<u>15</u>	<u>12</u>	<u>20</u>
SIXTH QUARTER (Section B)				
T—COP 101	Work Experience	0	40	4
SEVENTH QUARTER (Section A)				
T—COP 101	Work Experience	0	40	4
SEVENTH QUARTER (Section B)				
T—MEC 217	Engineering Materials & Processes	3	3	4
T—ISC 202	Quality Control	3	2	4
T—ISC 211	Work Measurement	3	2	4
T—MEC 213A	Production Planning I	3	3	4
T—EDP 104	Introduction to Data Processing	3	2	4
		<u>15</u>	<u>12</u>	<u>20</u>
EIGHTH QUARTER (Sections A and B)				
T—ECO 210	Labor Economics & Labor Relations	3	3	4
T—ISC 220	Management Problems	3	0	3
T—ISC 204	Value Analysis	3	3	4
T—ISC 209	Plant Layout	3	4	5
T—MEC 213B	Production Planning II	3	3	4
		<u>15</u>	<u>13</u>	<u>20</u>

GRADUATION REQUIREMENTS

ACADEMIC	119 Hours Credit
MINIMUM COOPERATIVE WORK EXPERIENCE	8 Hours Credit
TOTAL GRADUATION REQUIREMENT	127 Hours Credit



ACCOUNTING

Accounting is one of the fastest growing employment fields in America today, and the job outlook for good accountants seems bright for many years to come. These opportunities are the result of the tremendous business and industrial expansion in all parts of the country. Because of this emphasis, there is a growing need for trained people in the area of accounting to help managers keep track of a firm's operation. The Accounting Curriculum is designed to fill this need by offering students the necessary accounting theories and skills for entry into the accounting profession.

The duties and responsibilities of an accountant vary somewhat in different firms. Some of the things an accountant might do are: record transactions, render periodic reports, maintain cost records, make special reports, complete tax returns, audit the books, and advise management in areas of financial affairs.

The graduate of the Accounting Curriculum may qualify for various jobs in business and industry leading to any of the following accounting positions: accounting clerk, payroll clerk, accounting machine operator, auditor, and cost accountant. This training plus further experience should prepare them to become office managers, accounting supervisors, and to fill other responsible positions in a business firm.



ACCOUNTING

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-BUS 115	Business Law I	3	0	3
T-BUS 101	Introduction to Business	3	0	3
T-ENG 101	Grammar	3	0	3
T-MAT 110	Business Mathematics I	5	0	5
T-BUS 120	Accounting I	5	4	7
T-ECO 102	Economics I	3	0	3
		<hr/>	<hr/>	<hr/>
		22	4	24
SECOND QUARTER				
T-BUS 110	Office Machines	0	3	1
T-ENG 102	Composition	3	0	3
T-BUS 121	Accounting II	5	4	7
T-MAT 113	Business Mathematics II	5	0	5
T-BUS 102	Typing I	1	4	3
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		14	11	19
THIRD QUARTER				
T-ENG 103	Report Writing	3	0	3
T-ECO 104	Economics II	3	0	3
T-BUS 123	Business Finance I	3	0	3
T-MAT 104	Mathematics of Finance	5	0	5
T-BUS 222	Intermediate Accounting I	5	4	7
		<hr/>	<hr/>	<hr/>
		19	4	21
FOURTH QUARTER				
T-ENG 204	Oral Communication	3	0	3
T-BUS 116	Business Law II	3	0	3
T-EDP 104	Introduction to Data Processing Systems	3	2	4
T-BUS 124	Business Finance II	3	0	3
T-BUS 223	Intermediate Accounting II	5	4	7
T-BUS 235	Business Management	3	0	3
		<hr/>	<hr/>	<hr/>
		20	6	23
FIFTH QUARTER				
T-BUS 299	Business Communication	3	0	3
T-BUS 224	Advanced Accounting	5	4	7
T-BUS 219	Credit Procedures and Problems	3	0	3
T-BUS 217	Business Law III	3	0	3
T-PSY 206	Applied Psychology	3	0	3
T-BUS 247	Business Insurance I	3	0	3
		<hr/>	<hr/>	<hr/>
		20	4	22

	Hours	Per	Week
Class	Lab		Quarter Hours Credit

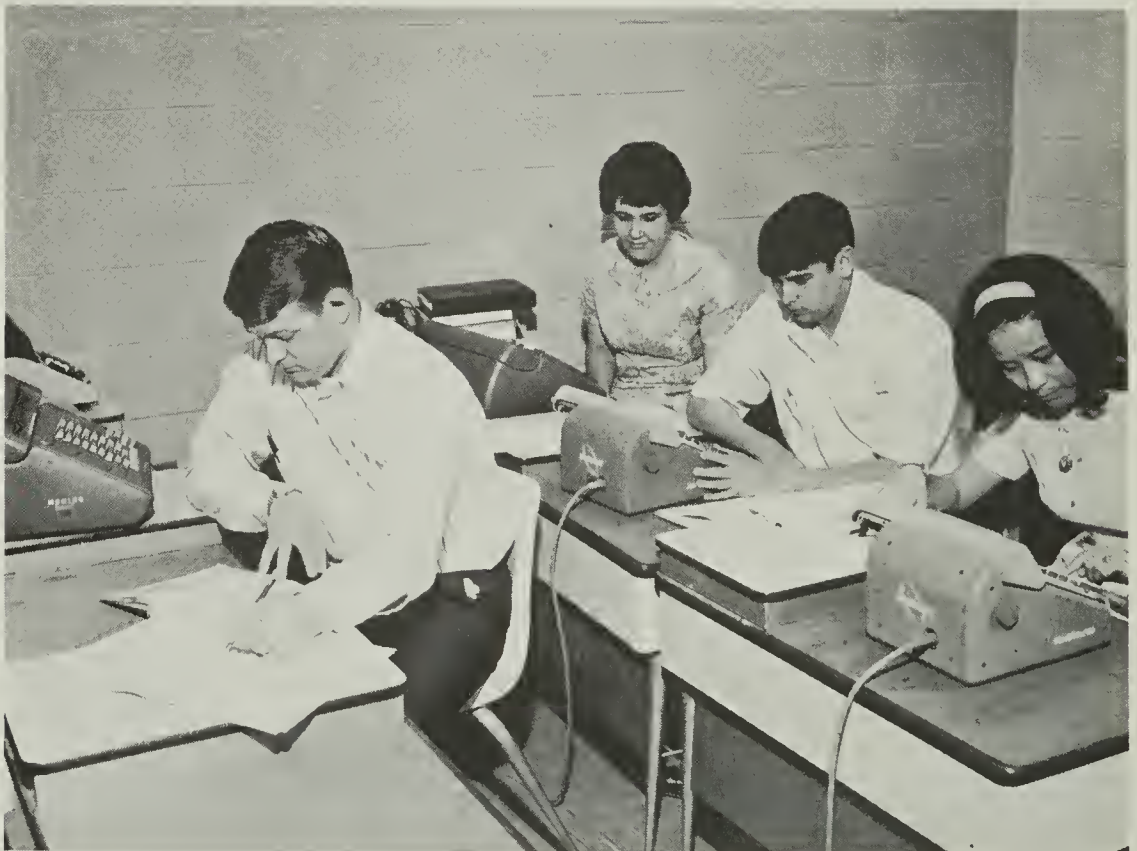
SIXTH QUARTER

T-BUS 257	Business Insurance II	3	0	3
T-BUS 225	Cost Accounting	3	4	5
T-BUS 269	Auditing	3	2	4
T-BUS 229	Taxes	3	2	4
T-BUS 233	Personnel Management	3	0	3
T-POL 201	U. S. Government	3	0	3
		<u>18</u>	<u>8</u>	<u>22</u>

GRADUATION REQUIREMENTS

ACADEMIC

131 Hours Credit



BUSINESS ADMINISTRATION

The Business Administration Curriculum is designed to prepare the student for employment in one of the many occupations common to business. Training is aimed at preparing the student in the many phases of administrative work that might be encountered in the average business.

The specific objectives of the Business Administration Curriculum are to enable the student to develop an understanding of the principles of organization and management in business operations and an understanding of our economy through the study and analysis of the role of production and marketing. Instruction in specific elements of accounting, finance, business law and taxes is given. Human relations as they apply to successful business operations are emphasized in such courses as Principles of Supervision, Personnel Management, Applied Psychology.

One of the primary aims of this program is to assist the student in developing understanding and skill in effective communication, both oral and written. The fundamentals of English are utilized as a background for the organization and techniques of modern report-writing. Emphasis is placed on writing business reports, summaries of business conferences, letters involving credit, adjustments, complaints, and inquiries. A course in oral communication stresses techniques of effective oral presentation with particular attention given to conducting meetings, conferences, and interviews.

Courses in advertising and sales development acquaint the student with product and market research, advertising appeals, selection of media, means of testing effectiveness of advertising, and practice in writing advertising copy for various media. An introduction to data processing systems is included as an aid in developing a basic knowledge of computers prerequisite to the detailed study of particular computer problems.

The graduate of the Business Administration Curriculum may enter a variety of career opportunities from beginning sales person or office clerk to manager trainee. The duties and responsibilities of this graduate vary in different firms. Such duties might include making up reports, tabulating and posting data in various books, checking calculations, adjusting-complaints, and assisting managers in supervising. Positions are available in businesses such as advertising, banking, credit, finance, retailing, wholesaling, travel, industry, insurance, transportation, and communications.

BUSINESS ADMINISTRATION

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-BUS 101	Introduction to Business	3	0	3
T-ENG 199	Spelling	3	0	3
T-ENG 101	Grammar	3	0	3
T-BUS 102	Typewriting I	1	4	3
T-MAT 110	Business Mathematics I	5	0	5
T-ECO 102	Economics I	3	0	3
		<u>18</u>	<u>4</u>	<u>20</u>
SECOND QUARTER				
T-BUS 110	Office Machines	0	3	1
T-ENG 102	Composition	3	0	3
T-BUS 120	Accounting I	5	4	7
T-BUS 115	Business Law I	3	0	3
T-MAT 113	Business Mathematics II	5	0	5
		<u>16</u>	<u>7</u>	<u>19</u>
THIRD QUARTER				
T-ECO 104	Economics II	3	0	3
T-ENG 103	Report Writing	3	0	3
T-BUS 232	Sales Development	3	0	3
T-BUS 123	Business Finance I	3	0	3
T-BUS 121	Accounting II	5	4	7
T-BUS 116	Business Law II	3	0	3
		<u>20</u>	<u>4</u>	<u>22</u>
FOURTH QUARTER				
T-BUS 225	Cost Accounting	2	4	4
T-ENG 204	Oral Communication	3	0	3
T-EDP 104	Introduction to Data Processing Systems	3	2	4
T-BUS 239	Marketing	5	0	5
T-BUS 124	Business Finance II	3	0	3
T-BUS 233	Personnel Management I	3	0	3
		<u>19</u>	<u>6</u>	<u>22</u>

	Hours	Per	Week
			Quarter
Class	Lab		Hours
			Credit

FIFTH QUARTER

T-BUS 245	Retailing	3	0	3
T-BUS 299	Business Communication	3	0	3
T-PSY 206	Applied Psychology	3	0	3
T-BUS 219	Credit Procedures & Problems	3	0	3
T-BUS 243	Advertising	3	2	4
T-BUS 235	Business Management	3	0	3
		<hr/>	<hr/>	<hr/>
		18	2	19

SIXTH QUARTER

T-BUS 217	Business Law III	3	0	3
T-POL 201	U. S. Government	3	0	3
T-BUS 237	Wholesaling	3	0	3
T-BUS 229	Taxes	3	2	4
T-BUS 272	Principles of Supervision	3	0	3
T-BUS 271	Office Management	3	0	3
T-BUS 247	Business Insurance I	3	0	3
		<hr/>	<hr/>	<hr/>
		21	2	22

GRADUATION REQUIREMENTS

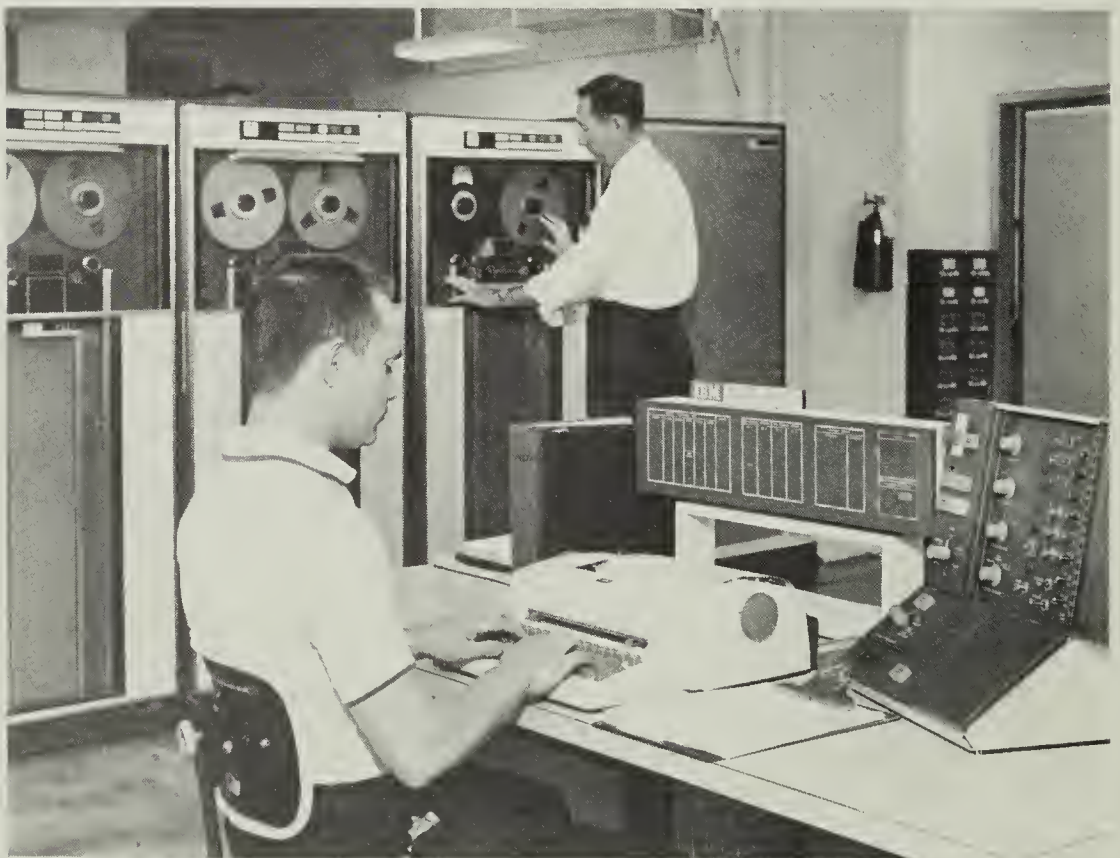
ACADEMIC

124 Hours Credit

BUSINESS DATA PROCESSING

The Business Data Processing specialist is taught to apply currently available programming techniques to a defined problem. The techniques are developed in courses such as functional wiring principles where the student is taught the fundamental wiring system necessary for the printing, punching, comparing, and selecting of data for machines. In introduction to data processing systems the student learns the fundamental concepts and operational principles of data processing systems. In fundamentals of programming the student is taught the functions and capabilities of a specific data processing machine. Programming drills, exercises, and case studies bridge the gap from the theoretical to actual problems of data processing. Business programming teaches the effective use of data processing equipment in meeting the information needs of business, utilizing the symbolic programming system in the solution of problems. Scientific programming is designed to provide a basic knowledge of programming systems concepts so that any specific system may be mastered with a minimum of instruction. The student learns the scope and potential of using mathematical programming with computers to increase industrial efficiency when he learns linear programming and critical path method.

In addition to the programming courses the student receives instruction in math, English and sociology.



BUSINESS DATA PROCESSING

CURRICULUM BY QUARTERS

Course Title	Hours Per Week		
	Class	Lab	Quarter Hours Credit

FIRST QUARTER

T-EDP 101	Functional Wiring Principles	3	6	5
T-MAT 111	EDP Mathematics I	5	0	5
T-ENG 101	Grammar	3	0	3
T-EDP 111	Introduction to Computer Technology	3	4	5
T-MAT 121	Numbering Systems & Boolean Algebra	3	0	3
		<u>17</u>	<u>10</u>	<u>21</u>

SECOND QUARTER

T-ENG 102	Composition	3	0	3
T-BUS 120	Accounting I	5	4	7
T-EDP 115	BAL Programming I	5	6	8
T-MAT 112	EDP Mathematics II	5	0	5
		<u>18</u>	<u>10</u>	<u>23</u>

THIRD QUARTER

T-EDP 116	COBOL Programming I	5	6	8
T-MAT 104	Mathematics of Finance	5	0	5
T-EDP 117	BAL Programming II	3	4	5
T-BUS 115	Business Law I	3	0	3
		<u>16</u>	<u>10</u>	<u>21</u>

FOURTH QUARTER (Section A)

T-EDP 221	COBOL Programming II	5	6	8
T-ENG 103	Report Writing	3	0	3
T-BUS 121	Accounting II	5	4	7
T-MAT 214	Statistics	5	0	5
		<u>18</u>	<u>10</u>	<u>23</u>

FOURTH QUARTER (Section B)

T-COP 100	Work Experience	0	40	4
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FIFTH QUARTER (Section A)

T-COP 100	Work Experience	0	40	4
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FIFTH QUARTER (Section B)

T-EDP 221	COBOL Programming II	5	6	8
T-ENG 103	Report Writing	3	0	3
T-BUS 121	Accounting II	5	4	7
T-MAT 214	Statistics	5	0	5
		<u>18</u>	<u>10</u>	<u>23</u>

SIXTH QUARTER (Section A)

T-EDP 108	FORTTRAN Programming	3	4	5
T-BUS 225	Cost Accounting	2	4	4
T-EDP 222	COBOL Programming III (RPG)	3	4	5
T-BUS 235	Business Management	3	0	3
		<u>11</u>	<u>12</u>	<u>17</u>

SIXTH QUARTER (Section B)

T-COP 101	Work Experience	0	40	4
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SEVENTH QUARTER (Section A)

T-COP 101	Work Experience	0	40	4
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SEVENTH QUARTER (Section B)

T-EDP 108	FORTTRAN Programming	3	4	5
T-BUS 225	Cost Accounting	2	4	4
T-EDP 222	COBOL Programming III (RPG)	3	4	5
T-BUS 235	Business Management	3	0	3
		<u>11</u>	<u>12</u>	<u>17</u>

EIGHTH QUARTER (Sections A and B)

T-EDP 223	RPG Programming	3	4	5
T-EDP 230	Business Program Projects	2	6	5
T-PSY 206	Psychology	3	0	3
T-ECO 102	Economics	3	0	3
T-ENG 204	Oral Communication	3	0	3
		<u>14</u>	<u>10</u>	<u>19</u>

GRADUATION REQUIREMENTS

ACADEMIC	124 Hours Credit
MINIMUM COOPERATIVE WORK EXPERIENCE	8 Hours Credit
TOTAL GRADUATION REQUIREMENT	132 Hours Credit

COURT REPORTING

The work of the reporter is varied and most interesting. He meets people in every walk of life, many of them leaders in their fields. He is often trusted not to divulge confidential information acquired in the course of his duties. He has the opportunity to study the tactics and strategies of attorneys and business men.

The training will cover two primary areas. (1) Shorthand speed: Machine shorthand is the basic tool of the reporter. The minimum speed necessary for reporting is 200 words per minute on matter which has not been practiced before. (2) Academic Education: The first requirement for the reporter is to take down in shorthand the spoken word. To do this, he/she must have an understanding of what is being said, whether in slurred accents or clear, at high speeds or low. This calls for having an extensive vocabulary, a good understanding of English grammar, and a broad general knowledge of courtroom procedure and legal and medical terminology.

The demand for reporters' services has kept pace with the steady increase in the activities of government and business. While it would be difficult to predict the exact extent of future demand, it has shown no signs of slackening, especially in view of the much publicized population explosion. The graduates will find employment in Federal, State, and local courts. Opportunities also exist in law firms and as conference reporters in industry.



COURT REPORTING

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 199	Spelling	3	0	3
T-ENG 101	Grammar	3	0	3
T-BUS 102	Typewriting I	1	4	3
T-BUS 126	Machine Shorthand I	5	6	7
T-BUS 185	Vocabulary Building	3	0	3
T-BUS 114	Law	3	0	3
		<u>18</u>	<u>10</u>	<u>22</u>
SECOND QUARTER				
T-ENG 102	Composition	3	0	3
T-BUS 103	Typewriting II	1	4	3
T-BUS 127	Machine Shorthand II	5	6	7
T-BUS 183L	Terminology and Vocabulary I (Legal)	3	0	3
T-BUS 251	Court Procedure I	3	0	3
		<u>15</u>	<u>10</u>	<u>19</u>
THIRD QUARTER				
T-BUS 299	Business Communication	3	0	3
T-BUS 104	Typewriting III	1	4	3
T-BUS 128	Machine Shorthand III	5	6	7
T-BUS 183M	Terminology and Vocabulary I (Medical)	3	0	3
T-BUS 252	Court Procedures	3	0	3
		<u>15</u>	<u>10</u>	<u>19</u>
FOURTH QUARTER				
T-ENG 204	Oral Communication	3	0	3
T-BUS 201	Machine Shorthand IV	5	6	7
T-BUS 202	Dictation and Transcription I	0	10	5
T-BUS 205	Advanced Typewriting	1	4	3
T-BUS 284M	Terminology and Vocabulary II (Medical)	3	0	3
		<u>12</u>	<u>20</u>	<u>21</u>
FIFTH QUARTER				
T-PSY 206	Applied Psychology	3	0	3
T-BUS 203	Dictation and Transcription II	0	10	5
T-PSY 112	Personality Development	3	0	3
T-BUS 214A	Secretarial Procedures I	2	4	4
		<u>8</u>	<u>14</u>	<u>15</u>

	Hours	Per	Week
			Quarter
Class	Lab		Hours
			Credit

SIXTH QUARTER

T—ECO 102	Economics	3	0	3
T—BUS 204	Dictation and Transcription III	0	10	5
T—BUS 214B	Secretarial Procedures II	2	2	3
T—BUS 253	Court Reporting	0	10	5
T—BUS 213	Office Practice	3	0	3
		<hr/>	<hr/>	<hr/>
		8	22	19

GRADUATION REQUIREMENTS

ACADEMIC

115 Hours Credit

SECRETARIAL SCIENCE

(Executive, Legal and Medical Option)

The demand for better qualified secretaries to work with professional persons continues to increase. These curricula are designed to produce individuals who will be well-versed in the accepted procedures they will encounter on the job.

The graduate of the Executive Secretary program can expect employment as a stenographer or secretary in organizations such as insurance companies, banks, industrial plants, and state government.

The Legal Secretary student will be given vocabulary, typing and dictation courses appropriate to her (or his) speciality. Employment opportunities are available in state and local government offices as well as with private firms.

The student in the Medical Secretary course will also be given specialized courses. Employment opportunities here include medical offices, hospitals, governmental health departments, and medical supply companies.

The students in the Secretarial curriculum, Executive, Legal, or Medical, will receive instruction in typing, beginning with an introduction to the touch typewriting system.

Instruction emphasizes the development of speed and accuracy, production typing problems, and development of individual production rates. The students learn the techniques needed in planning typing projects that closely approximate the work appropriate to their major field of study.

Each student must take courses in dictation beginning with a course in the theory and practice of reading and writing shorthand. Students who demonstrate proficiency are exempted from the first course. Office-style dictation with the emphasis on development of speed and accuracy in transcription of material appropriate to the major course of study is the culmination of this phase of the curriculum.

The students also receive instruction in accounting, business law, personality development, terminology and vocabulary, and data processing. In addition students take related courses in the fields of mathematics, sociology, and English.

SECRETARIAL SCIENCE
(Executive, Legal or Medical Option)
CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-ENG 199	Spelling	3	0	3
T-BUS 102	Typewriting I	1	4	3
T-MAT 110	Business Mathematics I	5	0	5
T-BUS 101	Introduction to Business	3	0	3
T-BUS 106	Shorthand I	1	4	3
		<hr/>	<hr/>	<hr/>
		16	8	20
SECOND QUARTER				
T-ENG 198	Business English	3	0	3
T-BUS 103	Typewriting II	1	4	3
T-BUS 107	Shorthand II	1	4	3
T-BUS 120	Accounting I	5	4	7
T-BUS 115	Business Law I	3	0	3
		<hr/>	<hr/>	<hr/>
		13	12	19
THIRD QUARTER				
T-ENG 102	Composition	3	0	3
T-PSY 112	Personality Development	3	0	3
T-BUS 104	Typewriting III	1	4	3
T-BUS 108	Shorthand III	1	4	3
T-BUS 214A	Secretarial Procedures I	2	4	4
T-BUS 183E	Terminology and Vocabulary-Executive	3	0	(3)*
T-BUS 183L	Terminology and Vocabulary-Legal	3	0	(3)*
T-BUS 183M	Terminology and Vocabulary-Medical	3	0	(3)*
		<hr/>	<hr/>	<hr/>
		13	12	19
FOURTH QUARTER				
T-ENG 204	Oral Communication	3	0	3
T-BUS 211	Duplicating Machines	0	4	2
T-BUS 206E	Dictation & Transcription-Executive I	0	10	(5)*
T-BUS 206L	Dictation & Transcription-Legal I	0	10	(5)*
T-BUS 206M	Dictation & Transcription-Medical I	0	10	(5)*
T-BUS 205	Advanced Typewriting I	1	4	3
T-BUS 110	Office Machines	0	3	1
T-BUS 284M	Terminology & Vocabulary-Medical II	3	0	(3)*
		<hr/>	<hr/>	<hr/>
		7	21	17

*OPTIONAL SCHEDULE

		Hours Per Week Quarter Hours Credit		
		Class	Lab	Credit
FIFTH QUARTER				
T-EDP 104	Introduction to Data Processing Systems	3	2	4
T-EDP 299	Business Communication	3	0	3
T-BUS 207E	Dictation & Transcription-Executive II	0	10	(5)*
T-BUS 207L	Dictation & Transcription-Legal II	0	10	(5)*
T-BUS 207M	Dictation & Transcription-Medical II	0	10	(5)*
T-ECO 102	Economics I	3	0	3
T-BUS 297	Advanced Typewriting II	1	4	3
		10	16	18

SIXTH QUARTER

T-PSY 206	Applied Psychology	3	0	3
T-ENG 103	Report Writing	3	0	3
T-BUS 208E	Dictation & Transcription-Executive III	0	10	(5)*
T-BUS 208L	Dictation & Transcription-Legal III	0	10	(5)*
T-BUS 208M	Dictation & Transcription-Medical III	0	10	(5)*
T-BUS 214B	Secretarial Procedures II	2	2	3
T-BUS 298	Advanced Typewriting III	1	4	3
		9	16	17

GRADUATION REQUIREMENTS

EXECUTIVE	107 Hours Credit
LEGAL	107 Hours Credit
MEDICAL	110 Hours Credit

*OPTIONAL SCHEDULE

POLICE SCIENCE TECHNOLOGY

Law enforcement techniques have evolved from rather simple jobs, requiring simple qualifications, to more complex activities requiring a large capacity for highly specialized knowledge.

Traditional policies and entrance requirements, coupled with education and training standards have led to a shortage of trained law enforcement technicians and administrators.

The program is designed to provide occupational training for the individual who has a definite interest in and adaptability to a law enforcement career. It offers practical, technical, and general instruction to meet the requirements of various law enforcement agencies and provides the student with skills, knowledges, and attitudes necessary for employment at the operational or management level.

There is an increasing demand for properly trained law enforcement officers in industry, municipal, county, state and federal agencies; and there is every reason to believe that the highly trained law enforcement officer will find challenging opportunities with public and private law enforcement services.

Law enforcement is that important division of government which is assigned the power and responsibility to maintain order and enforce law. Its basic functions may be classified as prevention of crime, suppression of criminal activity, apprehension of offenders, preservation of the peace, regulation of noncriminal conduct, and the protection of life and property.

To the original and primary police functions of preserving the peace and maintaining law and order, the ever widening scope of government activity has added a host of other duties to the various law enforcement agencies, ranging from the regulation of traffic and the suppression of vice to the enforcement of minor laws and ordinances that regulate the minutiae of business and private life in a modern society.

POLICE SCIENCE TECHNOLOGY

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-MAT 110	Business Math	5	0	5
T-PSC 101	Introduction to Law Enforcement	5	0	5
T-PSY 102	General Psychology	5	0	5
		<hr/> 18	<hr/> 0	<hr/> 18
SECOND QUARTER				
T-ENG 102	Composition	3	0	3
T-SOC 102	Principles of Sociology	5	0	5
T-POL 102	Government – National	5	0	5
T-PSC 220	Police Organization & Administration	5	0	5
		<hr/> 18	<hr/> 0	<hr/> 18
THIRD QUARTER				
T-ENG 103	Report Writing	3	0	3
T-POL 103	Government – State and Local	5	0	5
T-PSC 110	Police Role in Crime & Delinquency	5	0	5
T-PHO 101	Basic Photography	3	4	5
		<hr/> 16	<hr/> 4	<hr/> 18
FOURTH QUARTER				
T-ENG 204	Oral Communication	3	0	3
T-PSC 201	Traffic Planning & Management	4	2	5
T-CHM 101	Chemistry	4	2	5
T-PSC 115	Criminal Law	5	0	5
		<hr/> 16	<hr/> 4	<hr/> 18
FIFTH QUARTER				
T-PSC 205	Criminal Evidence	5	0	5
T-PSC 210	Criminal Investigation	5	0	5
T-PSC 226	Chemical Tests for Intoxication	3	2	4
T-PSC 230	Crime Scene Technology	3	2	4
		<hr/> 16	<hr/> 4	<hr/> 18

	Hours Per Week		Quarter
Class	Lab	Hours	Credit

SIXTH QUARTER

T-PSC 211	Introduction to Criminalistics	4	3	5
T-PSC 225	Criminal Procedure	5	0	5
T-PSY 103	Adolescent Psychology	5	0	5
T-PSY 215	Psychology of Groups & Crowd Control	3	0	3
		<u>17</u>	<u>3</u>	<u>18</u>

GRADUATION REQUIREMENTS

ACADEMIC

108 Hours Credit



TRAFFIC ENGINEERING TECHNOLOGY

The Traffic Engineering Technology curriculum is designed to provide a basic background and working knowledge of science, mathematics, communications skills, and general engineering technology subject matter as a foundation for further study.

With this background, and through concentrated study of and practical work in traffic planning and management, including design, analysis, evaluation, and administration of traffic systems, the student should become an effective technician to work under the supervision and control of a qualified traffic engineer.

TRAFFIC ENGINEERING TECHNOLOGY

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
T-ENG 101	Grammar	3	0	3
T-MAT 101	Technical Mathematics I	5	0	5
T-PHY 101	Physics I	3	2	4
T-DFT 101	Technical Drafting I	0	6	2
T-TRA 101	Introduction to Traffic Engineering	3	3	4
		14	11	18
SECOND QUARTER				
T-ENG 102	Composition	3	0	3
T-MAT 102	Technical Mathematics II	5	0	5
T-PHY 102	Physics II	3	2	4
T-DFT 102	Technical Drafting II	0	6	2
T-TRA 110	Principles of Traffic Administration and Safety	3	0	3
		17	8	20
THIRD QUARTER				
T-ENG 103	Report Writing	3	0	3
T-PHY 103	Physics III	3	2	4
T-TRA 120	Principles of Traffic Engineering	3	2	4
T-CIV 101	Surveying I	2	6	4
T-TRA 121	Motor Vehicles – Types and Characteristics	3	2	4
		14	12	19
FOURTH QUARTER				
T-ENG 204	Oral Communication	3	0	3
T-MAT 214	Statistics	5	0	5
T-PHY 104	Physics IV	3	2	4
T-TRA 201	Traffic Surveys	3	4	5
T-EDP 104	Introduction to Data Processing	3	2	4
		17	8	21
FIFTH QUARTER				
T-ECO 102	Economics	3	0	3
T-PSY 206	Applied Psychology	3	0	3
T-TRA 210	Traffic Studies	2	4	4
T-EDP 108	FORTTRAN Programming	3	4	5
T-PHO 101	Basic Photography	3	4	5
		14	12	20

		Hours	Per	Week
		Class	Lab	Quarter
				Hours
				Credit
SIXTH QUARTER				
T-PSY 227	Driver & Pedestrian Psychology	3	3	4
T-TRA 221	Principles of Transportation Planning	3	3	4
T-TRA 223	Geometric Design	3	4	5
T-TRA 222	Traffic Control Devices, Materials, and Equipment	3	3	4
		12	13	17

GRADUATION REQUIREMENTS

ACADEMIC

115 Hours Credit

TRADE DIVISION



TRADE DIVISION

In North Carolina, as well as throughout the nation, the demand for skilled tradesmen is at an all-time high. Hardly a day passes that the Institute does not have at least one call from industry looking for prospective employees. Graduates of the trade programs sometimes have as many as four or five offers of employment upon graduation.

Students in the skilled trade programs are trained in shops similar to those of private industries. The shops contain testing and measuring instruments, and tools and equipment of the same size and types as found in private firms. The facilities make possible practical instruction which is essential to the preparation of skilled workers needed by today's modern industries. Students in these trade programs spend twenty-five to thirty hours per week in school; this time is divided between classroom studies and practice shop work.

Skilled craftsmanship in the occupation, educational background, and leadership ability are the bases for instructor selection in these trade courses.

A diploma is awarded to those students who satisfactorily complete the one-year (12 months) trade program. To be eligible for the diploma, a satisfactory passing grade must be maintained in all shop work and related class subjects.

A certificate is awarded to those students who satisfactorily complete the less-than-one-year practical trade program. The practical trade programs are oriented toward special work skills and provide instruction for up-grading in general education. To be eligible for the certificate, satisfactory performance must be demonstrated in all shop work.

COURSES OF STUDY

Diploma Programs

- Air Conditioning and Refrigeration Servicing
- Automotive Repair
- Electrical Installation and Maintenance
- Machine Shop Practices
- Mechanical Drafting
- Medical Laboratory Assistant
- Practical Nursing
- Radio and Television Servicing
- Tool and Die Practices
- Welding

Certificate Programs

Nursing Assistant (Aide and Orderly)
Operating Room Assistant
Practical Automotive Repair
Practical Carpentry
Practical Machine Operations
Practical Masonry
Practical Welding

EDUCATIONAL REQUIREMENTS**Diploma Programs**

1. High School Graduation or equivalent education preferred; however, satisfactory completion of eight (8) units of secondary school is acceptable.
2. One unit of math — Algebra I or the equivalent — recommended for Drafting, Electrical Installation and Maintenance, Radio and Television Servicing, Machinist and Medical Laboratory Assistant. *

Applicants for Admission to the Tool and Die Practices Curriculum must have the following requirements:

1. Satisfactory completion of a one-year Machinist training program or the equivalent in experience.
2. Two units of mathematics — Algebra I and Geometry, or the equivalent. *

Certificate Programs

1. Be able to profit from the training
2. Eighth grade-level in Reading and Mathematics, recommended. *
3. High School graduation or equivalent education, preferred; however, satisfactory completion of eight (8) units of secondary school is acceptable for the Operating Room Assistant program.

*Can be made up in the Programmed Materials Laboratory.

AIR CONDITIONING AND REFRIGERATION SERVICING

The use of air conditioning and refrigeration equipment increases each year. Most new building construction for business and commercial use have "all year" comfort systems. Many homes are being air conditioned with the trend toward greater use of "all year" systems of cooling and heating. The food industry requires extensive use of refrigeration systems in freezing, storage, and display of products. With this great upswing in the use of air conditioning and refrigeration equipment, a greater demand is made on trained personnel to install, operate, maintain and service this equipment.

This curriculum is designed to provide practical knowledge necessary to become capable service men in the industry. The principle objective is to present the required technical and related instruction to understand the basic principles involved in the construction, operation, and maintenance of equipment. Job opportunities exist with companies that specialize in air conditioning and commercial refrigeration installation and service. The service man is employable in areas of sales, maintenance, installation and in the growing fields of truck and trailer refrigeration.

The air conditioning and refrigeration mechanic installs, inspects, maintains, services and repairs domestic and commercial equipment. Connects motors, compressors, temperature controls, humidity controls, and circulating fans to control panels. Tests systems, observes pressure and vacuum gauges and adjusts controls to insure proper operation.

AIR CONDITIONING AND REFRIGERATION SERVICING

CURRICULUM BY QUARTERS

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
MAT 1101	Fundamentals of Mathematics	5	0	5
AHR 1111	Refrigeration Fundamentals	6	12	10
ENG 1101	Reading Improvement	3	0	3
BPR 1104	Blueprint Reading	0	3	1
		<u>14</u>	<u>15</u>	<u>19</u>
SECOND QUARTER				
ELC 1102	Basic Electricity	3	6	5
AHR 1112	Commercial Refrigeration I	6	9	9
ENG 1102	Communication Skills	3	0	3
BUS 1103	Small Business Management	3	0	3
		<u>15</u>	<u>15</u>	<u>20</u>
THIRD QUARTER				
AHR 1113	Commercial Refrigeration II	3	9	6
AHR 1126	All-season Air Conditioning I	3	6	5
AHR 1143	Controls — Air Conditioning & Refrigeration	<u>3</u>	<u>6</u>	<u>5</u>
		9	21	16
FOURTH QUARTER				
AHR 1134	Air Distribution	3	6	5
AHR 1144	Troubleshooting — Air Conditioning & Refrigeration	3	6	5
AHR 1127	All-season Air Conditioning II	3	0	3
PSY 1101	Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
		12	18	18

GRADUATION REQUIREMENT:

73 Hours Credit

AUTOMOTIVE REPAIR

Training is provided in a four-quarter curriculum designed to provide students with a thorough general background in automotive repair, beginning with an orientation unit including shop safety, hand tools and power tools. Most of PME 1101 is devoted to learning the principles of engine operation, testing procedures, and the diagnosing and servicing of engines. In the second quarter, students are taught the operation of the electrical system and its maintenance, including battery, generator, and ignition equipment. Also, some time is devoted to the fuel system, during which students are required to rebuild carburetors, and service air cleaners, fuel pumps, and other components of this system. During the third quarter emphasis is placed on brake systems, and chassis components including springs, shock absorbers, and steering mechanisms. In the final quarter the shop time of students increases to twenty-four hours per week. In addition to a fundamental treatment of power trains, both standard and automatic, the students take a course entitled Automotive Servicing. Maintenance problems are assigned requiring them to call upon all knowledge previously learned. They will need to be able to diagnose malfunctions, isolate the causes, and proceed to make necessary repairs in a logical order. Body work and diesel engine repair are not included.

Throughout the entire program, a student will be taking related courses designed to give him a deeper understanding of the world of work, and his place in it than he would get if undergoing on-the-job training. Courses such as blueprint reading, welding, and mathematics give him additional skills, while courses such as human relations and management procedures provide explanations for understanding why people act as they do.



AUTOMOTIVE REPAIR

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
PME 1101	Internal Combustion Engines	3	12	7
MAT 1101	Fundamentals of Mathematics	5	0	5
WLD 1101	Basic Gas Welding	1	4	3
		<hr/>	<hr/>	<hr/>
		9	16	15
SECOND QUARTER				
PME 1102	Engine Electrical and Fuel Systems	5	12	9
ENG 1101	Reading Improvement	3	0	3
BPR 1101	Schematics & Diagrams: Power Mechanics		3	1
PHY 1101	Applied Science	3	2	4
		<hr/>	<hr/>	<hr/>
		11	17	17
THIRD QUARTER				
AUT 1123	Automotive Chassis & Suspension Systems	3	9	6
AUT 1121	Braking Systems	3	3	4
ENG 1102	Communication Skills	3	0	3
AHR 1101	Automotive Air Conditioning	2	3	3
PHY 1102	Applied Physics	3	2	4
		<hr/>	<hr/>	<hr/>
		14	17	20
FOURTH QUARTER				
AUT 1124	Automotive Power Train Systems	3	9	6
AUT 1125	Automotive Servicing	3	9	6
BUS 1103	Small Business Operations	3	0	3
PSY 1101	Human Relations	3	0	3
		<hr/>	<hr/>	<hr/>
		12	18	18
GRADUATION REQUIREMENT:		70 Hours Credit		

ELECTRICAL INSTALLATION AND MAINTENANCE

The installation electricians perform various tasks related to electrical work on construction projects. They lay out, assemble, install, and test electrical fixtures, apparatus, and wiring used in electrical systems. These systems are used to provide heat, light, power, air conditioning, and refrigeration in residences, office buildings, factories, hospitals, schools, and other structures.

Maintenance electricians are skilled workers who maintain and repair many different types of electrical equipment. In addition, they sometimes modify and install electrical equipment. Maintenance electricians work on equipment such as motors, transformers, generators, circuit breakers, controls, and lighting equipment used in industrial, commercial, and public establishments. A large part of a maintenance electrician's work consists of periodically inspecting equipment to detect and repair defective equipment before breakdown occurs.

During the first quarter of school the student makes a study of the electrical structure of matter, the electron theory, and the relationship between voltage, current, and resistance in series, parallel, and series — parallel circuits. He makes an analysis of direct current circuits by Ohm's Law and Kirchhoff's Law. The student is also taught the sources of direct current voltage potentials and the fundamental concepts of alternating current flow, reactance, impedance, phase angle, power and resonance.

In the second quarter the student learns the fundamental concepts of single and polyphase alternating current circuits, voltage, currents, power measurements, transformers, and motors. The student receives instruction in the use of electrical test instruments in circuit analysis. He is taught the basic concepts of AC and DC machines and simple control systems with an introduction to the types of controls used in small appliances, such as thermostats, timers, or sequencing switches.

Second quarter work includes learning the fundamentals of blueprint reading.

Third quarter work emphasizes the planning, layout, and installation of wiring in residential applications such as: services, switchboards, lighting, fusing, wire sizes, branch circuits and conduits. The students are taught the National Electrical Code regulations as used in actual building construction.

In the fourth quarter the student learns the layout, planning, and installation of wiring systems in commercial and industrial complexes, with emphasis on electrical blueprint reading symbols.

Because of the increased use of electronic devices in industrial electrical installations, two courses in industrial electronics have been added to this curriculum. Here students will learn the operating characteristics of vacuum tubes, and their use in amplifiers, power supplies and electronic control systems.

ELECTRICAL INSTALLATION AND MAINTENANCE

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
ELC 1112	Direct and Alternating Current	6	12	10
BPR 1113	Blueprint Reading: Electrical	0	3	1
MAT 1115	Electrical Math	6	0	6
		<u>12</u>	<u>15</u>	<u>17</u>
SECOND QUARTER				
PHY 1101	Applied Science	3	2	4
ELC 1113	Alternating Current and Direct Current Machines and Controls	3	12	7
BPR 1110	Blueprint Reading: Building Trades	0	3	1
ENG 1101	Reading Improvement	3	0	3
PSY 1101	Human Relations	3	0	3
		<u>12</u>	<u>17</u>	<u>18</u>
THIRD QUARTER				
PHY 1102	Applied Science	3	2	4
ELC 1124	Residential Wiring	3	12	7
ELN 1118	Industrial Electronics I	3	9	6
		<u>9</u>	<u>23</u>	<u>17</u>
FOURTH QUARTER				
ELC 1125	Commercial and Industrial Wiring	5	12	9
ENG 1102	Communication Skills	3	0	3
ELN 1119	Industrial Electronics II	3	6	5
BUS 1103	Small Business Operations	3	0	3
		<u>14</u>	<u>18</u>	<u>20</u>
GRADUATION REQUIREMENT:		71 Hours Credit		

MACHINE SHOP PRACTICES

The journeyman machinist is a skilled metal worker who makes metal parts with machine tools. A machinist can set up and operate most types of machine tools. His wide knowledge of shop practices and properties of steel, cast iron, aluminum, brass, and other metals, and his understanding of what the various machine tools do, enable him to turn a block of metal into an intricate part meeting precise specifications.

Variety is a key characteristic of the work of a journeyman machinist. He plans and carries through all operations needed in turning out machined products. He may switch from one kind of product to another. He also selects the tools and materials required for each job and plans the cutting and finishing operations in order to complete the finished work according to blueprints or written specifications. He makes standard shop computations relating to dimensions of work, tooling, and feeds and speeds of several machines. He uses precision-measuring instruments to measure the accuracy of his work to thousandths and even millionths of an inch. After completing machining operations, he may finish the work by hand, using files and scrapers, and then assemble the finished parts with wrenches and screwdrivers. The machinist also heat treats cutting tools and parts to improve wear.

Machinists who are employed in maintenance departments making or repairing metal parts for machines and equipment also need a broad knowledge of mechanical principles. They adjust and test the parts they have made.

The four-quarter program is designed to provide students with a thorough general background in machine shop operations. The course begins with an introduction to the machine trade and the potential it holds for the craftsman. The students are taught identification, care and use of basic hand tools and precision measuring instruments. Instruction is then given in elementary layout procedures and basic operations on the lathe, drill press, grinding, and milling machines.

Second quarter instruction moves to advanced operations such as taper turning and thread cutting on the lathe, using the index head on the milling machine, and operating cylindrical and surface grinders. In the third quarter, the student begins work on the turret lathe, and spends much of his time on the vertical milling machine.

Students are rotated through all of the machines in the Institute's shop. They reinforce skills already learned while undertaking more complex operations. In the fourth quarter the students develop projects using previously learned procedures including planning, blueprint reading, machining, assembly and inspection.

The student also receives instruction in related courses such as math, English, physics, welding, and sociology. These courses, in addition to increasing his skills, provide explanations for understanding the world of work. It is well known that persons who have a broad background have a better chance for promotions than a person who is limited to only one or two skills.

MACHINE SHOP PRACTICES

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
MEC 1101	Machine Shop Theory & Practice I	3	12	7
MAT 1101	Fundamentals of Mathematics	5	0	5
BPR 1104	Blueprint Reading: Mechanical I	0	3	1
MEC 1115	Ferrous Metallurgy	2	3	3
		<u>10</u>	<u>18</u>	<u>16</u>
SECOND QUARTER				
MEC 1102	Machine Shop Theory & Practice II	3	12	7
BUS 1105	Industrial Organizations	3	0	3
MAT 1103	Geometry	5	0	5
BPR 1105	Blueprint Reading: Mechanical II	0	3	1
PHY 1101	Applied Science	3	2	4
		<u>14</u>	<u>17</u>	<u>20</u>
THIRD QUARTER				
MEC 1103	Machine Shop Theory & Practice III	3	12	7
BPR 1106	Blueprint Reading: Mechanical III	0	3	1
MAT 1104	Trigonometry	5	0	5
PHY 1102	Applied Science	3	2	4
ENG 1101	Reading Improvement	3	0	3
		<u>14</u>	<u>17</u>	<u>20</u>
FOURTH QUARTER				
MEC 1104	Machine Shop Theory & Practice IV	3	12	7
ENG 1102	Communication Skills	3	0	3
MEC 1116	Treatment of Non-ferrous Metals	2	3	3
WLD 1101	Basic Gas Welding	1	4	3
MAT 1123	Machinist Mathematics	3	0	3
PSY 1101	Human Relations	3	0	3
		<u>15</u>	<u>19</u>	<u>22</u>
GRADUATION REQUIREMENT:		78 Hours Credit		

MECHANICAL DRAFTING

Draftsmen translate the ideas, rough sketches, specifications, and calculations of engineers, architects, and designers into complete and accurate working plans which are used by skilled craftsmen in making a product. Draftsmen may make calculations concerning the strength, reliability, and cost of materials, and check dimensions of parts and their relationship to each other. Through their drawings and specifications, they describe exactly what materials and processes skilled craftsmen are to use on a particular job. In developing their drawings, draftsmen use such instruments as compasses, dividers, protractors, and triangles, as well as machines that combine the functions of several devices. They may also use engineering handbooks and tables to assist in solving technical problems.

Mechanical Draftsmen specialize in making rough sketches of proposed mechanical devices and then drawing necessary details. They must prepare accurate scale drawings of parts or machines.

In the basic drafting courses the student learns the selections, use, and care of instruments, lettering, sketching, and pictorial drawings. Orthographic projection, dimensioning, simple and successive revolutions and their applications to practical problems follow. Methods of drawing including axonometric, oblique, and perspective drawings will be studied with emphasis on practical applications.

The student begins his study of mechanical drafting with an introduction to problems concerning precision and limit dimensioning. Methods of fastening materials, keys, rivets, and springs comprise a part of the third quarter. Principles of design will be introduced through the study of the basic mechanisms of motion transfer: gears, cams, power trains, pulleys, and belts.

In the fourth quarter of the curriculum the student learns the principles of design sketching, design drawings, layout drafting, detailing from layout drawings, and production drawing. He will make forging and casting drawings from layouts. The student will develop a complete set of working drawings of a tool, jig, fixture or simple machine, and learn to use handbooks and manuals.

MECHANICAL DRAFTING

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
DFT 1121	Mechanical Drafting I	3	12	7
MAT 1103	Geometry	5	0	5
MEC 1115	Treatment of Ferrous Metals	2	3	3
PHY 1101	Applied Science	3	2	4
		<u>13</u>	<u>17</u>	<u>19</u>
SECOND QUARTER				
DFT 1122	Mechanical Drafting II	3	6	5
DFT 1125	Descriptive Geometry	2	4	4
MAT 1102	Algebra	5	0	5
ENG 1101	Reading Improvement	3	0	3
PHY 1102	Applied Science	3	2	4
		<u>16</u>	<u>12</u>	<u>21</u>
THIRD QUARTER				
DFT 1131	Mechanical Drafting III	3	12	7
ENG 1102	Communication Skills	3	0	3
MAT 1104	Trigonometry	5	0	5
MEC 1113	Shop Processes I	2	3	3
		<u>13</u>	<u>15</u>	<u>18</u>
FOURTH QUARTER				
PSY 1101	Human Relations	3	0	3
DFT 1132	Mechanical Drafting IV	3	12	7
MEC 1114	Shop Processes II	2	3	3
MEC 1116	Treatment of Nonferrous Metals	2	3	3
BUS 1105	Industrial Organizations	3	0	3
		<u>13</u>	<u>18</u>	<u>19</u>
GRADUATION REQUIREMENT:		77 Hours Credit		

MEDICAL LABORATORY ASSISTANT

The Medical Laboratory Assistant works under the direct supervision of a medical technologist and/or a medical doctor. The assistant is taught to collect specimens, prepare slides, and perform routine laboratory tests. Although most of these persons will be employed in a hospital, a few will be hired by doctors to work in their offices, or by agencies conducting medical research. Only persons with a high sense of responsibility and the ability to do careful, scientific work should consider this field of employment.

The Medical Laboratory Assistant training program is separated into two sections of six months each. During the first six months, the students attend classes and participate in supervised laboratory practices in the Institute's facilities adjacent to Wake Memorial Hospital. During the second six months, students are assigned to a hospital laboratory for clinical experience. They are rotated through different departments in order to develop skills in all of the laboratory's functions. Graduates of this curriculum are eligible to take the national examination of the Board of Certified Laboratory Assistants. Those passing the examination are awarded the title of Certified Laboratory Assistant.

In anatomy and physiology, students are taught the structure of the body, and the function of cells, tissues, organs, and systems. In clinical chemistry, the student is trained to perform routine hand methods for blood sugar, blood urea nitrogen, albumin and globulin fractionation, amylase, bilirubin, cholesterol, and other tests. He will also be taught to perform standardized procedures and to calculate precision limits using quality control data. In hematology, students develop skill in counting cells, in measuring sedimentation rates and hemoglobin, and in observing coagulation. Considerable time is spent in preparing blood smears and learning to examine them for abnormalities. In urinalysis, students collect specimens, perform routine screenings, and learn to take specific gravity, sugar, and protein tests. The BMR course teaches the student to prepare patients for the basal metabolism rate and to calculate the patient's rate using standard machines. The electrocardiography course teaches the student to perform electrocardiograms and to keep records of this work. In the blood bank, the Laboratory Assistant student is taught donor screening, blood grouping, phlebotomies, and cross matching. In his histology course, he is assigned to a tissue laboratory, where he learns to process, cut, mold, and stain tissues for microscopic examination.

This curriculum was designed jointly by medical technologist, pathologists, and educators for the purpose of giving students the necessary knowledge and laboratory practice during the first six months of instruction to enable them to move into a hospital's laboratory with a minimum of orientation. Each of the laboratory courses provides experiences similar to those the student can expect to meet in the third and fourth quarters.

MEDICAL LABORATORY ASSISTANT

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
MLA 1000	Health Occupations Orientation	2	0	2
MLA 1001	Anatomy, Physiology and Basic Pathology	2	0	2
MLA 1002	Basic Science	3	0	3
MLA 1003	Clinical Chemistry I	2	6	5
MLA 1005	Hematology I	2	6	5
MLA 1008	EKG and BMR	1	2	2
MLA 1017	Serology	2	0	2
		14	14	21
SECOND QUARTER				
MLA 1004	Urinalysis	1	4	3
MLA 1006	Clinical Chemistry II	2	6	5
MLA 1007	Hematology II	1	6	4
MLA 1009	Microbiology	1	4	3
MLA 1010	Blood Banking I	1	2	2
		6	22	17
		Weeks	Total Clinical Hours	Quarter Hours Credit
THIRD & FOURTH QUARTERS (22-week Clinical phase)*				
MLA 1011	Hematology III	6	240	6
MLA 1012	Chemistry and Urinalysis	6	240	6
MLA 1013	EKG	2	80	2
MLA 1014	Blood Banking II	3	120	3
MLA 1015	Bacteriology	4	160	4
MLA 1016	Histology	2	40	1
		23	880	22

GRADUATION REQUIREMENT:

78 Hours Credit

*For scheduling scheme, see clinical scheduling system.

PRACTICAL NURSING

Licensed practical nurses assist in the care and treatment of the physically and mentally ill, under the direction of physicians or professional nurses. As members of a nursing team, they perform many of the less complex tasks, thus freeing professional nurses for more skilled and specialized duties. They may also assist physicians or professional nurses with complicated diagnostic procedures or treatments.

Practical nurses usually give prescribed treatments, take patients' temperature, pulse and blood pressure readings, and help with bathing and other personal hygiene tasks. They may also provide nursing care for newborn babies and their mothers, the handicapped, the chronically ill, or the convalescent. They are employed by hospitals, clinics, rest homes, homes for the aged, and as private duty nurses.

Classroom activities are planned to help students develop the knowledge basic to effective nursing. They are encouraged to analyze patient needs through the study of hypothetical situations and through planned clinical experiences. Initial learning of skills is provided by laboratory sessions. Clinical activities are scheduled to parallel material that the students are learning in the classroom. As the year progresses, more time is spent in the hospital; and less time is spent in the classroom.



PRACTICAL NURSING

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
PNE 1101	Fundamentals of Practical Nursing	9	6	12
PNE 1102	Nutrition and Diet Therapy	2	0	2
PNE 1103	Anatomy and Physiology	5	0	5
PNE 1104	Growth and Development	3	0	3
ENG 1101	Reading Improvement	3	0	3
		<u>22</u>	<u>6</u>	<u>25</u>
SECOND QUARTER				
PNE 1105	Pharmacology I	2	0	2
PNE 1106	Medical-Surgical Nursing I	4	0	4
PNE 1107	Obstetric Nursing	3	0	3
PNE 1108	Pediatric Nursing	3	0	3
PNE 1109	Clinical Experience I: Medical, Surgical, Obstetrical, Pediatric one or more of the four	<u>0</u> 12	<u>24</u> 24	<u>8</u> 20
THIRD QUARTER				
PNE 1110	Medical-Surgical Nursing II	6	0	6
PNE 1111	Pharmacology II	3	0	3
PNE 1112	Clinical Experience II: Medical, Obstetrical, Pediatric, Surgical, one or more of the four	0	24	8
ENG 1102	English Grammar	<u>3</u> 12	<u>0</u> 24	<u>3</u> 20
FOURTH QUARTER				
PNE 1113	Medical-Surgical Nursing III	6	0	6
PNE 1114	Clinical Experience III: Medical, Surgical, Obstetrical, Pediatric, one or more of the four	0	24	8
PSY 1111	Human Relations for Health Occupations	3	0	3
ENG 1103	Report Writing	<u>3</u> 12	<u>0</u> 24	<u>3</u> 20
GRADUATION REQUIREMENT:		85 Hours Credit		

RADIO AND TELEVISION SERVICING

Within recent years improved electronic techniques have provided expanded entertainment and industrial opportunities for individuals with a knowledge of electronics. The Radio and Television Servicing course provides a training program in which the basic knowledge and skills involved in the installation, maintenance, and servicing of radio-television and sound amplifier systems are taught.

In the first quarter the student studies the structure of matter, the electron theory, and the relationships between voltage, current, and resistance in series, parallel, and series-parallel circuits. The student makes an analysis of direct current circuits by Ohm's Law and Kirchhoff's Law, and the sources of direct current potentials. Instruction is also given in the fundamental concepts of alternating current, including a study of reactance, impedance, phase angle, power, resonance, and circuit analysis.

The second quarter study deals with the study of vacuum tubes and their development, the theory, characteristics and operation of vacuum diodes, semi-conductor diodes, rectifier circuits, filter circuits, triodes, and simple amplifier circuits. The student practices servicing techniques as applied to monophonic and stereophonic high fidelity amplifier systems and auxiliary equipment.

Third quarter work concentrates on a study of the principles of radio reception and practices of servicing. The student learns to interpret block diagrams of radio receivers, servicing techniques of AM and FM receivers by resistance measurements, signal injection, voltage analysis, and oscilloscope methods of locating faulty stages and components. Students learn the theory, operation, and characteristics of transistors and their application to audio and radio frequency amplifier and oscillator circuits. They continue the study of vacuum tubes and circuits with emphasis on the operation of the tetrode and pentode tubes, voltage and power amplifiers, tunable RF amplifiers, oscillators and demodulator circuits.

In the fourth quarter the student studies the principles of television receivers, alignment of radio and intermediate sweep circuits. The techniques of troubleshooting and repair of television receivers with the proper use of associated test equipment will be stressed.

Since their work will require meeting the public both in the repair shop and on service calls, Radio and Television Servicing students will take related courses in math, English, human relations and small business management.

RADIO AND TELEVISION SERVICING

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
MAT 1115	Electrical Mathematics	6	0	6
ENG 1101	Reading Improvement	3	0	3
ELC 1112	Direct & Alternating Current	6	12	10
		<u>15</u>	<u>12</u>	<u>19</u>
SECOND QUARTER				
ENG 1102	Communication Skills	3	0	3
ELN 1122	Vacuum Tubes & Circuits	6	9	9
ELN 1126	Transistor Theory & Circuits	5	6	7
		<u>14</u>	<u>15</u>	<u>19</u>
THIRD QUARTER				
ELN 1125	Radio Receiver Servicing	3	6	5
ELN 1127	TV Receiver Circuits & Servicing	6	9	9
BUS 1103	Small Business Operations	3	0	3
PSY 1101	Human Relations	3	0	3
		<u>15</u>	<u>15</u>	<u>20</u>
FOURTH QUARTER				
ELN 1128	TV Receivers — Color	6	9	9
ELN 1146	FCC Rules and Regulations	3	0	3
ELN 1123	Amplifier Systems	3	6	5
ELN 1130	Two-way Mobile Maintenance	3	6	6
		<u>15</u>	<u>21</u>	<u>23</u>
GRADUATION REQUIREMENT:		81 Hours Credit		

TOOL AND DIE PRACTICES

Year by year, the machines tools industry is faced with an increasing shortage of tool and die makers. This shortage has been brought about by the rapid expansion of industry and the retirement of the older craftsmen in this field. The purpose of this curriculum is to provide a training program that will give the student the necessary background in theory and practice to enable him to become a capable tool and die maker in far less time than would be required to obtain these skills and knowledge without formal instruction.

Complexity of new tools in industry increases each year due to new engineering, scientific discovery, and the space age need for closer tolerances. This complexity is reflected first in the tools, dies, gages, and molds that must be built by the tool and die men. This curriculum provides a basis from which the student may meet this great challenge and critical need.

Tool and die makers are responsible for the accuracy of thousands of parts because the jigs, fixtures, dies, molds and gages, which are the basic tools of mass production, are built by the tool and die men. They must be able to proficiently operate all the basic shop equipment, be able to read precision measuring instruments and interpret complicated engineering drawings, and have the know-how to reproduce these drawings in the form of finished metal parts.

Tool and die making is a term used to describe the overall job of the mechanic in this phase of industry. The journeyman tool and die maker usually has the knowledge and skill required to perform all phases of this type of work, although some may specialize in a particular phase of the trade such as progressive die, jigs and fixtures and gage making. NOTE:

This curriculum is intended to provide the training necessary for transition from the occupation of machinist to that of Tool and Die maker. It is intended as advance training; and in order to qualify for enrollment, the student must either be a recent graduate of a one-year machinist training course on the post-secondary level or be an experienced machinist, skilled and experienced in the operation and set-up of manual and semi-automatic machines such as lathes, milling machines, shapers, drills, grinders, saws, etc. He must also have recently completed math courses at least through algebra and geometry and courses in practical physics as applied to machine shop programs.

TOOL AND DIE PRACTICES

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
DFT 1207	Mechanical Drafting	2	6	4
MAT 1203	Trigonometry	3	0	3
MEC 1201	Machine Processes I	3	12	7
		<u>8</u>	<u>18</u>	<u>14</u>
SECOND QUARTER				
DFT 1208	Drafting & Descriptive Geometry	2	6	4
MAT 1204	Compound Angles	5	0	5
MEC 1202	Machine Processes II	3	12	7
MEC 1203	Metallurgy	2	3	3
		<u>12</u>	<u>21</u>	<u>19</u>
THIRD QUARTER				
ELC 1201	Electricity — Industrial	2	4	4
MEC 1204	Machine Processes III	2	12	6
MEC 1205	Strength of Materials	2	3	3
PHY 1204	Mechanisms	2	3	3
		<u>8</u>	<u>22</u>	<u>16</u>
FOURTH QUARTER				
DFT 1212	Tool Design	2	6	4
MEC 1206	Machine Processes IV	3	12	7
MEC 1207	Special Problems	3	4	5
PHY 1205	Hydraulics and Pneumatics	2	3	3
		<u>10</u>	<u>25</u>	<u>19</u>
GRADUATION REQUIREMENT:		68 Hours Credit		

WELDING

Welders join metals by applying intense heat to melt metal, and allowing portions of two separate pieces to flow together. This skill is needed in production and repair shops, and on construction projects, among other places. The welding curriculum is designed to give students a thorough understanding of the methods, techniques, and principles necessary to become proficient welders, in addition to shop work in which they can develop this skill as a welder.

During the first quarter students spend half their time with the welding instructor. They are taught the care, use, and safety practices of hand and power tools needed in this trade. Then they begin a thorough unit in oxyacetylene welding by first learning the equipment, such as blowpipes, tips, regulators, hoses, and accessories. They are taught the set-up procedures of assembling equipment, selecting metals, and preparing metals. Welding procedures of fusion, flame cutting, brazing, and soldering are practiced in the shop. Other time is spent in blueprint reading, mathematics, and other related classes in order to give the student a sufficient background for using his shop time effectively.

In the second quarter, the shop work shifts to arc welding. After learning the basic characteristics of both AC and DC electric welding machines, and the safety precautions necessary for operating them, techniques for adjusting the machines and preparing plates for welding are demonstrated. The student then practices running a straight bead, and welding the five fundamental types of joints. They will use flat, vertical, and overhead positions. Related courses include applications of geometry to welding, and blueprint reading.

Third quarter emphasis is on pipe welding. Fundamental ideas here include selecting the correct electrode, and understanding proper current, rate of travel, and electrode angles. The student then practices making beads, joints, and fittings. He will also be taught how to prevent defects, and how to test completed work.

Nationwide, approximately three-fourths of the welders are employed in manufacturing industries. As more of these industries move into the South, and particularly into the Wake County area, local job opportunities for welders will continue to increase. A thorough training program such as the one outlined in this brochure will give a man a saleable skill which will be in demand for many years to come.

WELDING

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
WLD 1120	Oxyacetylene Welding & Cutting	3	12	7
MAT 1101	Fundamentals of Mathematics	5	0	5
BPR 1104	Blueprint Reading: Mechanical	0	3	1
PHY 1101	Applied Science	3	2	4
ENG 1101	Reading Improvement	3	0	3
		<u>14</u>	<u>17</u>	<u>20</u>
SECOND QUARTER				
WLD 1121	Arc Welding	3	12	7
MAT 1103	Geometry	5	0	5
BPR 1117	Blueprint Reading: Welding	0	3	1
PHY 1102	Applied Science	3	2	4
ENG 1102	Communication Skills	3	0	3
		<u>14</u>	<u>17</u>	<u>20</u>
THIRD QUARTER				
WLD 1124	Pipe Welding	3	12	7
WLD 1123	Inert Gas Welding	1	3	2
WLD 1112	Mechanical Testing & Inspection	1	3	2
DFT 1118	Pattern Development & Sketching	0	3	1
PSY 1101	Human Relations	3	0	3
		<u>8</u>	<u>21</u>	<u>15</u>
FOURTH QUARTER				
WLD 1122	Commercial & Industrial Practices	3	9	6
WLD 1125	Certification Practices	3	6	5
MEC 1112	Machine Shop Processes	0	6	2
BUS 1105	Industrial Organizations	3	0	3
		<u>9</u>	<u>21</u>	<u>16</u>
GRADUATION REQUIREMENT:		69 Hours Credit		

NURSING ASSISTANT (Aide and Orderly)

Nursing services have evolved to the point where registered nurses are now primarily involved with medications and charting, while practical nurses are mainly used to administer treatments. This leaves the important area of patient care to the nurses' assistant. Therefore much of the instruction in this course is devoted to developing in the student an attitude that will be patient-centered. There will be many occasions when the wrong things said to a patient will have a damaging effect on his recovery, and also when the right thing said will have a definite helping effect.

Instruction is carried out in two different settings. Classroom and laboratory facilities are located in the educational areas adjacent to the Wake County Memorial Hospital. Students spend their first few weeks there, then are gradually worked into hospital assignments. The instructor accompanies them into the wards, and continues instruction while the students attend to patients. At the end of the course students are spending most of their time in the hospital, still under the instructor's supervision.

Because the job description of nurses' assistant varies between hospitals, the topics included in this course were selected to prepare a person to perform those duties commonly assigned throughout the Raleigh area. With this basic background thoroughly learned, the student should be able to adapt readily to differences encountered when beginning employment.

Instruction is organized around seven units, with classroom work paralleling laboratory sessions in order to provide practice opportunities in bedmaking, temperature taking, and other skills. Students are first introduced to the hospital's function in the community, then to the part the nursing staff plays in carrying out this mission. Then Unit II emphasizes relationships between the nursing assistant and the patient, and begins to point up the influence that the assistant has on the patient's attitude. Unit III introduces the laboratory and clinical work, with each student having opportunities to practice skills on other class members before being assigned to hospital patients. Equipment is available in the educational area to do this. As students spend more time in the hospital, classroom work is organized to discuss the things they are seeing on the wards. They can bring questions and problems back to the instructor, who will provide answers the other students can use when that situation arises again. In Unit VI students are trained in differences encountered when working with patients in isolation and surgical patients. Their special needs are considered as well as hospital procedures for their care. Unit VII is an attempt to prepare the student to become a responsible employee who will be a credit to his or her employer, and who will find satisfaction in his work.

NURSING ASSISTANT (Aide and Orderly)

SCHEDULE OF INSTRUCTION

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
EDU 1031	General Studies – Health	6	0	6*
NUR 1010	Nursing Procedures and Clinical Practices	0	24	8*
		<hr/> 6	<hr/> 24	<hr/> 14



*Academic credit may or may not be awarded for courses in this program. Graduation eligibility may be based on satisfactory performance and attendance.

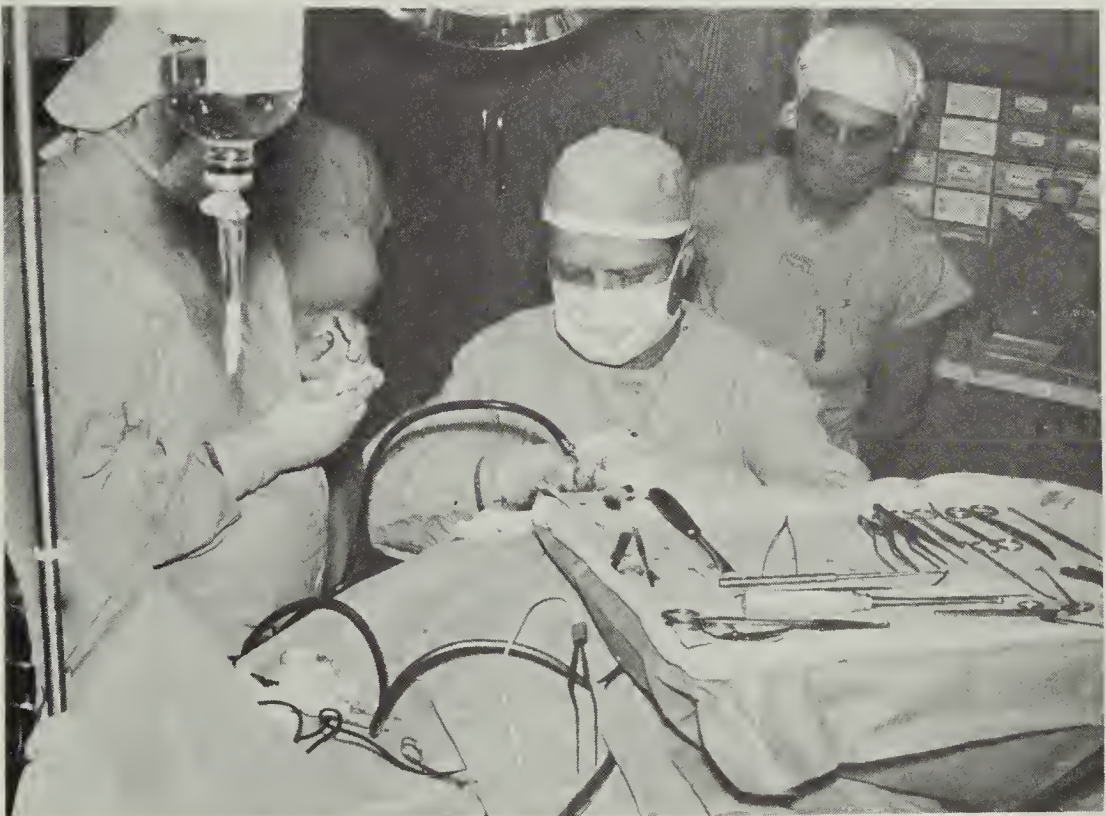
OPERATING ROOM ASSISTANT

The Operating Room Assistant is a selected person who is prepared to assist professional personnel in medical areas directly concerned with sterile technique. Most of the graduates of this curriculum will probably be employed in the operating room of a hospital, but opportunities also exist in recovery rooms, emergency rooms, wards, intensive care units, and obstetrics.

Functions of the assistant include scrubbing for surgery, assisting nurses and surgeons during operations, sterilizing and packaging equipment, and cleaning up after operations. These jobs stress manual aptitudes more than academic. But because the assistant is involved in life-saving work constantly, a high degree of common sense, responsibility, and dedication is required. Emotional stability, patience, and attention to minute detail are characteristics that must be part of the operating room assistant.

Students will attend classes at the Memorial Hospital of Wake County and be assigned to the Hospital's operating room for clinical experience. The objectives of the curriculum are designed to meet standards set up by the Association of Operating Room Nurses and the American College of Surgeons.

The program includes instruction in sterile techniques; hospital ethics and policies; terminology; anatomy; physiology; bacteriology, surgical procedures; instruments, equipment and supplies; the operating room team; human relations and psychology; patient care; clinical experience; and other areas related to the functions of the operating room assistant.



OPERATING ROOM ASSISTANT

CURRICULUM BY QUARTERS

Course Title		Hours Class	Per Week Lab	Quarter Hours Credit
FIRST QUARTER				
SUR 1101	Principles of Operating Room Technique	9	6	11
SUR 1102	Anatomy and Physiology	6	4	8
SUR 1103	Microbiology	4	1	4
		<u>19</u>	<u>11</u>	<u>23</u>
SECOND QUARTER				
SUR 1104	Surgical Procedures	10	0	10
SUR 1105	Clinical Practice	0	20	10
		<u>10</u>	<u>20</u>	<u>20</u>
GRADUATION REQUIREMENT:		43 Hours Credit		

PRACTICAL AUTOMOTIVE REPAIR

The Practical Automotive Repair curriculum is a two-quarter program consisting of twenty-five hours per week devoted to instruction in basic automotive shop practices and in developing the skills necessary to use and apply the basic tools of the automotive trade. In addition, ten hours per week of instruction concentrates on developmental studies which provide the student the opportunity to improve his reading ability and basic communicative skills, his skills in basic mathematics, and his understanding of the factors essential to good relations with others both on and off the job.

The practical automotive mechanic assists the master mechanic in the performance of his duties by using automotive tools and equipment to disassemble and to reassemble auto systems, system components, and accessories. In the performance of these duties, the practical mechanic should know the nomenclature and function of tools and automotive components to the extent that disassemble and reassemble instructions received in either oral or written form are readily understood. The practical mechanic is not required to possess the depth of knowledge and understanding of automatic principles to be able to test and diagnose; but through experience and further study, the practical automotive mechanic may acquire these abilities.



PRACTICAL AUTOMOTIVE REPAIR

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
PME 1001	Basic Automotive Shop Practices	5	20	15
EDU 1026	General Studies I	10	0	10
		<hr/>	<hr/>	<hr/>
		15	20	25
SECOND QUARTER				
PME 1002	Automotive Shop Practices	5	20	15
EDU 1027	General Studies II	10	0	10
		<hr/>	<hr/>	<hr/>
		15	20	25
GRADUATION REQUIREMENT:		50 Hours Credit		

PRACTICAL CARPENTRY

The Practical Carpentry curriculum is designed to provide the student with principles and practices in the carpentry trade that will enable him to obtain employment as a floor and wall framing carpenter. He will be able to operate safely and properly the basic tools and work with the various materials in residential construction. In addition he will receive instruction in developmental studies which provide the opportunity to improve his reading ability and basic communicative skills, his skills in basic mathematics, and his understanding of the factors essential to good relations with others both on and off the job.

The practical floor and wall framing carpenter will, under supervision, be capable of performing the many jobs among which are: (a) participate in measuring, cutting and assembling and erecting both interior and exterior frame walls; (b) participate in applying exterior sheathing and siding; (c) measure, cut, lay out and assemble in place floor members such as floor joints, girders, sills, plates and bridging and braces; (d) measure, cut and apply subflooring; (e) care, maintain and store tools used in the trade; (f) measure, cut and frame out for necessary floor openings; (g) serve in a utility capacity during other phases of construction.

PRACTICAL CARPENTRY

CURRICULUM BY QUARTERS

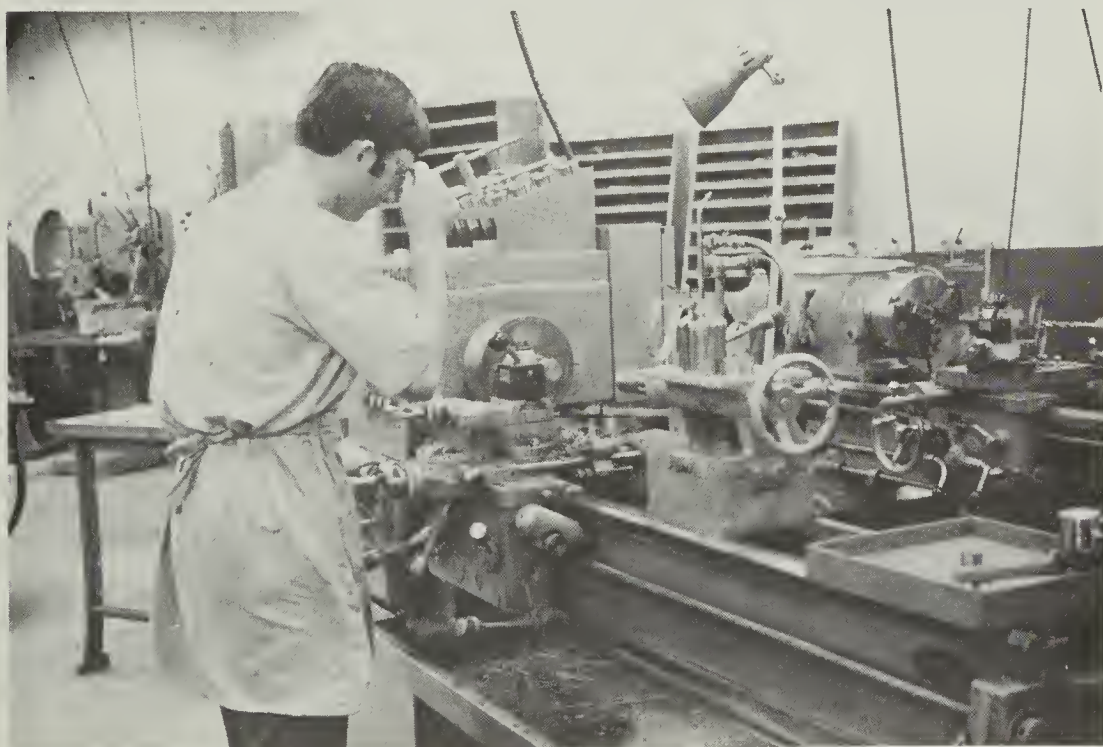
Course Title		Hours Class	Per Lab	Week Quarter Hours Credit
FIRST QUARTER (Phase I)				
CAR 1001	Practical Carpentry I	5	20	15
EDU 1026	General Studies I	10	0	10
		<hr/> 15	<hr/> 20	<hr/> 25
SECOND QUARTER (Phase II)				
CAR 1002	Practical Carpentry II	5	20	15
EDU 1027	General Studies II	10	0	10
		<hr/> 15	<hr/> 20	<hr/> 25
PHASE 1 – GRADUATION REQUIREMENT:		25 Hours Credit		
PHASE 2 – GRADUATION REQUIREMENT:		50 Hours Credit		

PRACTICAL MACHINE OPERATIONS

This is a two-quarter program consisting of twenty-five hours per week devoted to instruction in the basic principles and practices of machine shop operations and in developing a high degree of skill in the operation of lathes, grinders, shapers, drills and milling machines and in the use of related tools and equipment. In addition, ten hours per week of instruction concentrates on developmental studies which provide the student the opportunity to improve his reading ability and basic communicative skills, his skills in basic mathematics, and his understanding of the factors essential to good relations with others both on and off the job.

The machine operator works in the machine shop support area in manufacturing and in the machine production processes utilizing that machinery and equipment. The machine operator should have an understanding of a variety of machines such as lathes, grinders, milling machines, drills and shapers and should be skilled in their set-up and operation. He must be able to use related measuring instruments and to read blueprints as required in the machining process to the extent that operational and production instructions are readily understood and to the extent necessary for the practical machinist to perform his duties with a minimum of direct supervision.

The machine operator is not required to possess the depth of knowledge and understanding of machine technology to be able to develop and lay out production procedures, to select materials, or to perform operational computations which are normally prescribed in the production process. However, through experience and further study, the practical machinist may acquire these abilities.



PRACTICAL MACHINE OPERATIONS CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
MEC 1001	Machine Practices I	5	20	15
EDU 1026	General Studies I	10	0	10
		<hr/>	<hr/>	<hr/>
		15	20	25
SECOND QUARTER				
MEC 1002	Machine Practices II	5	20	15
EDU 1027	General Studies II	10	0	10
		<hr/>	<hr/>	<hr/>
		15	20	25
GRADUATION REQUIREMENT:		50 Hours Credit		

PRACTICAL MASONRY

This curriculum is designed to provide basic skills in the art of bricklaying so that the student will be able to enter the trade as a beginning mason. In addition instruction is provided in developmental studies which provide the student the opportunity to improve his reading ability and basic communicative skills, his skills in basic related mathematics, and his understanding of the factors essential to good relations with others both on and off the job.

The beginning bricklayer will be required to use basic bricklaying tools such as a trowel, level, rule, and brick hammer. He will lay brick to a line between corners of a masonry structure and be able to erect simple corners and foundation walls.



PRACTICAL MASONRY

CURRICULUM BY QUARTERS

Course Title		Hours Per Week		
		Class	Lab	Quarter Hours Credit
FIRST QUARTER				
MAS 1001	Practical Bricklaying I	5	20	15
EDU 1026	General Studies I	10	0	10
		<hr/>	<hr/>	<hr/>
		15	20	25
SECOND QUARTER				
MAS 1002	Practical Bricklaying II	5	20	15
EDU 1027	General Studies II	10	0	10
		<hr/>	<hr/>	<hr/>
		15	20	25
PHASE 1 – GRADUATION REQUIREMENT:		25 Hours Credit		
PHASE 2 – GRADUATION REQUIREMENT:		50 Hours Credit		

PRACTICAL WELDING

This is a two-quarter program consisting of twenty-five hours per week devoted to instruction in basic welding practices and to developing a high degree of skill in the performance of welding operations. An additional ten hours per week of instruction concentrates on developmental studies which provide the student the opportunity to improve his reading ability and basic communicative skills, his skills in basic mathematics, and his understanding of the basic factors essential to good relations with others both on and off the job.

The welder joins metal primarily through the application of sufficient heat to cause the metal components to melt and form a permanent bond. He may also use a similar process in cutting metal into different patterns. Of more than thirty-five different ways of welding metals, arc, gas, and resistance welding are the three most basic.

The principal duty of the practical welder is to apply his knowledge and skill in the use of basic welding equipment in the joining of metal components to produce metal products, in the cutting of metal into shapes and patterns, and in the repairing of faults or ruptures in metals and metal structures. He should possess a high degree of skill in the correct usage of basic welding equipment, with a basic understanding of jigs, welding symbols, and blueprint reading.



PRACTICAL WELDING

CURRICULUM BY QUARTERS

Course Title		Hours Class	Per Lab	Week Quarter Hours Credit
FIRST QUARTER				
WLD 1001	Welding Practices I	5	20	15
EDU 1026	General Studies I	10	0	10
		<hr/> 15	<hr/> 20	<hr/> 25
SECOND QUARTER				
WLD 1002	Welding Practices II	5	20	15
EDU 1027	General Studies II	10	0	10
		<hr/> 15	<hr/> 20	<hr/> 25
GRADUATION REQUIREMENT:		50 Hours Credit		

CONTINUING EDUCATION DIVISION



ADULT EDUCATION

The Adult Education activities of Holding Technical Institute are primarily concerned with raising the educational level of adults and providing cultural enrichment courses. The Institute is prepared to provide training at all levels from grade one (learning to read and write) up through high school equivalency. The training is provided through organized classes and through the Programmed Materials Laboratory.

PROGRAM OFFERINGS

1. High School Equivalency Certificate

The State of North Carolina, through the Department of Public Instruction, permits adults to take the General Educational Development Tests, (generally referred to as "the High School Equivalency Examination") at test centers throughout the State. Persons who make satisfactory scores on all five sections of the test are issued the High School Equivalency Certificate by the Department of Public Instruction. This certificate is recognized by most industries, schools and government agencies as meeting their requirements for a high school education. An application for the test may be obtained from the Programmed Materials Laboratory Coordinator. The testing fee is \$3.00.

The Institute provides training in the five areas covered by the examination both through organized classes and the Programmed Materials Laboratory.

2. Basic and Secondary Education Instruction

Basic Education (0-4) – For those adults who test less than a fourth grade educational level.

Basic Education (5-8) – For those adults who test less than a ninth grade educational level.

High School Completion (9-12)–The Needham B. Broughton Adult High School Diploma Program and the Programmed Materials Laboratory offer the courses and materials essential to high school completion requirements.

3. Needham B. Broughton Adult High School Diploma Program

The program is organized to offer academic courses for adults 19 and over who wish to attain a high school diploma and for those who wish to make up a deficiency from a previous program. All students have the opportunity to take refresher courses in areas of need and to pursue the requirements for high school graduation.

Individuals who satisfactorily complete the program will be awarded a Needham B. Broughton, Adult High School Diploma by the Board of Education, Raleigh Public Schools.

The program is conducted on a four-quarter basis with classes meeting two nights (Tuesdays and Thursdays) a week from 7:00 p.m. until 10:00 p.m. Each course consists of a minimum of 72 hours of classroom instruction. It is possible for a student to attain four credits in one calendar year.

Course Costs

A local fee of \$5.00 per course is charged. Students are responsible for purchasing their own textbooks and necessary supplies; however, students have the opportunity to order books through the Administrator-in-Residence.

Requirements for Diploma

Courses offered are designed to meet diploma requirements for those who have already earned some high school credits. A maximum of 13 credits may be transferred into the Adult High School Diploma Program. Students desiring to enter the program have three alternative entrance requirements: One of the three requirements is a prerequisite to official enrollment in the diploma program.

GROUP I

Entrance requirements: At least 13 acceptable high school credits.

Courses to be completed:

- (a) English IV
- (b) Mathematics
- (c) Social Studies (American History, if not on record)

GROUP II

Entrance requirements: At least 12 acceptable high school credits and/or score of 41 on G.E.D. test. Courses to be completed:

- (a) Mathematics
- (b) Social Studies (American History, if not on record)
- (c) English IV
- (d) One elective

GROUP III

Entrance Requirements: At least 8 acceptable high school credits and/or score of 39 on G.E.D. test. Courses to be completed:

- (a) English III and IV
- (b) Two Mathematics

- (c) Two Social Studies (one will be American History)
- (d) Two electives

In every case, the student's curriculum will be planned individually in line with the above requirements. Staff members will review each student's record and provide assistance in planning the individual's program.

Regular Courses to be Offered

- | | |
|--------------------------|----------------------|
| 1. English III and IV | 8. French I and II |
| 2. American History | 9. German I and II |
| 3. World History | 10. Spanish I and II |
| 4. Government | 11. General Science |
| 5. Algebra I and II | 12. Biology |
| 6. Geometry | 13. Home Economics |
| 7. General Math I and II | |

Transfer of Credits

Credits gained in this program are recognized by most other institutions. Before enrollment, however, the student should ascertain the acceptability of these credits to the particular institution he wishes to attend.

Refresher Course

A refresher course in mathematics, English, and reading is offered for those students who have less than 8 acceptable high school credits and/or a score below 39 on the G.E.D. test, and for those who meet minimum placement requirements but experience difficulty in the regular course. No credit is given; the course is conducted to prepare the student to take the G.E.D. test or for the student's own improvement. Students who wish to qualify for a High School Equivalency Diploma will be permitted to register for the refresher course.

Audit of Courses

Persons not enrolled in the Adult High School Diploma Program may audit the courses offered. The local fee is \$5.00; no credit is given for completion.

Minimum Enrollment

Normally, a minimum of 15 students must register for a class before the course will be offered.

Registration takes place at the Needham B. Broughton High School in Raleigh. For time and dates contact the Director of General Adult Education at Holding Technical Institute.

4. Other Offerings

In addition to basic and secondary education instruction the General Adult Division offers a large variety of courses both at the Institute and throughout the area it serves. The types and frequency of these offerings are determined by the expressed needs and interests in a given area of study. A sampling of courses under this heading would include:

Consumer Education	Citizenship
Homemaking	Health and Safety
Parent Education	Creative Arts
Family Life	

Admission Requirements

Any adult who has reached the age of eighteen (18) or older and is not enrolled in public school is eligible to enroll in most courses. One exception to this is that persons enrolling in the Adult High School Diploma Program must be 21 years of age or older.

Expenses

Generally, there is no charge for instruction; however, in certain courses, there may be charges for supplies, textbooks and other materials when these are used.

VOCATIONAL AND TRADE EXTENSION PROGRAMS

W. W. Holding Technical Institute provides training in numerous subjects through its Extension programs. Extension classes are held both at the Institute and at various locations throughout Wake County and are scheduled both day and night. These classes are designed to prepare individuals for employment or to upgrade those already employed.

The Extension Programs also serve area industries, businesses, and public agencies by providing training for their employees. Training under this division of the Institute can be offered at any time a need for such training is established. Full details can be obtained by contacting the Extension Director at the Institute.

Admission Requirements

Generally speaking, any individual who is 18 years of age or whose high school class has graduated is eligible for admission into extension classes; applicants are usually admitted on the first-come, first-served basis. Some classes may have specific admission requirements; in such cases the applicants will be informed of these requirements.

Expenses

No registration fees are charged for Extension classes. In some cases a materials or supply fee is charged to cover the cost of instructional supplies. Any charges are due and payable at the first class session.

EXAMPLES OF EXTENSION PROGRAMS OFFERED*

TRADES AND INDUSTRY

Air Conditioning & Refrigeration	Electricity
Automotive Repair	Machine Shop Practices
Automotive Electricity	Slide Rule
Basic Electronics	Small Engine Repair
Blueprint Reading	Welding

HEALTH OCCUPATIONS

R. N. Refresher	L. P. N. Upgrading
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LAW ENFORCEMENT TRAINING

Basic Peace Officers' Training	Breathalyzer Operator
Auxiliary Police Training	Breathalyzer Supervisor
Crowd Control	Police Supervision

FIREMANSHIP TRAINING

Basic Fire Service Training	Fireman Supervisor
General Fire Service Training	

SUPERVISORY DEVELOPMENT TRAINING

Fundamentals of Supervision	Effective Communications
Effective Writing	Job Methods
Effective Speaking	Job Analysis
Human Relations	Work Measurement
Industrial First Aid	

HOSPITALITY TRAINING

School Food Service	Cooks and Bakers
Waitress Training	

* This listing is in no way comprehensive, but is offered as a general sample of extension type courses. For further information, contact the Extension Director by letter or by calling (919) 772-0551.

BRIEF COURSE DESCRIPTIONS



COURSE DESCRIPTIONS

T-AHR 106 Architectural Mechanical Equipment::

General study of heating, air conditioning, plumbing and electrical equipment, materials and symbols. Building code requirements pertaining to residential and commercial structures. Reading and interpretation of working drawings by mechanical engineers. Coordination of mechanical and electrical features with structural and architectural designs.

Prerequisite: None.

AHR 1101 Automotive Air-Conditioning:

General introduction to the principles of refrigeration; study of the assembly of the components and connections necessary in the mechanisms, the methods of operation, and control; proper handling of refrigerants in charging the system.

Prerequisites: PHY 1102, BPR 1101, PME 1102

AHR 1111 Refrigeration Fundamentals:

An introduction to refrigeration fundamentals, definitions, safety procedures and practices, tool and equipment use and care, and identification of refrigeration system component parts. Begins with a study of the nature of matter, heat, gases, and fluids. Principles of measurement, heat transfer, pressure, and pressure-enthalpy diagrams supplement the instruction in the study of refrigeration cycles, absorption refrigeration, and refrigerants. Laboratory exercises include working with tools; tubing; refrigerants; functioning refrigeration models; component parts, such as compressors, expansion valves, and condensers; and lubrication systems.

Prerequisite: None.

AHR 1112 Commercial Refrigeration I:

The history and scope of commercial refrigeration with a survey of refrigerated storage conditions and requirements provide an introduction to the study of commercial refrigeration systems and components. Component study includes evaporators, compressors, and condensers. Working laboratory models provide practical experience in the development of an understanding of refrigeration component functions.

Prerequisite: AHR 1111.

AHR 1113 Commercial Refrigeration II:

A continuation of the study of commercial refrigeration system components, refrigerant lines, pressure reducing devices, and accessories. Followed by evaluation of installation requirements, load calculations, installation procedures, initial system operation, and operational servicing. Laboratory exercises utilizing working models and simulated jobs supported with working drawings and specifications supplement learning experiences in such areas as calculating refrigeration loads, planning installations, and troubleshooting to correct system installation errors and faulty equipment.

Prerequisite: AHR 1112.

AHR 1126 All-season Air Conditioning I:

A study of all-season air conditioning requirements, heat transfer, comfort standards, and psychometrics. Includes blueprint reading, construction prints and electrical diagram interpretation, and the principles and application of humidity, temperature, and pressure measuring instruments. Laboratory exercises using working models under simulated conditions and resulting evaluation supplement classroom instruction in providing for a practical understanding of principles studied.

Prerequisites: MAT 1101, AHR 1113.

AHR 1127 All-season Air Conditioning II:

A study of the theory of reverse cycle refrigeration and its application in all-season air conditioning for heating and cooling. Functioning models provide for the development of practical knowledge of all-season air conditioning component function and total system operation. Exercises in the laboratory emphasize system operation, malfunction, detection procedures and servicing techniques.

Prerequisite: AHR 1126.

AHR 1134 Air Distribution:

A study of air pressures, air flow principles, and air flow control and required duct systems. Includes function and operation of air flow systems, components and air flow equipment. Laboratory exercises provide practical experience in air flow system balancing and adjusting, installation procedures, and servicing techniques.

Prerequisites: AHR 1127, AHR 1143.

AHR 1143 Controls - Air Conditioning & Refrigeration:

A detailed study of the operating principles and applications of refrigeration system control components, including electrical and mechanical devices; control operation, evaluation, measurements, and adjustments; and control system maintenance and repair procedures. Functioning control systems and components provide practical knowledge and experience in control system and component installation, servicing, and repair.

Prerequisite: AHR 1127.

AHR 1144 Troubleshooting - Air Conditioning & Refrigeration:

Troubleshooting procedures and servicing techniques emphasize complete air conditioning and refrigeration systems; including refrigeration cycles, controls, electrical systems, and air flow systems. Practical exercises develop experience through the evaluation of trouble symptoms, diagnosing for corrective service or repair, and performing preventative and corrective maintenance. Laboratory exercises involve locating and correcting representative system and subsystem malfunctions through systematic and thorough troubleshooting procedures.

Prerequisites: AHR 1143, AHR 1134.

AUT 1121 Braking Systems:

A complete study of various braking systems employed on automobiles and lightweight trucks. Emphasis is placed on how they operate, proper adjustment, and repair.

Prerequisite: PHY 1102.

AUT 1123 Automotive Chassis and Suspension Systems:

Principles and functions of the components of automotive chassis. Practical job instruction in adjusting and repairing of suspension, and steering systems. Units to be studied will be shock absorbers, springs, steering systems, steering linkage, and front end alignment.

Prerequisite: PME 1102.

AUT 1124 Automotive Power Train Systems:

Principles and functions of automotive power train systems: clutches, transmission gears, torque converters, drive shaft assemblies, rear axles and differentials. Identification of troubles, servicing, and repair.

Prerequisites: PHY 1102, AUT 1123, BPR 1101.

AUT 1125 Automotive Servicing:

Emphasis is on the shop procedures necessary in determining the nature of troubles developed in the various component systems of the automobile. Troubleshooting of automotive systems, providing a full range of experiences in testing, adjusting, repairing and replacing.

Prerequisites: AUT 1123, AUT 1121, AHR 1101.

BPR 1101 Schematics & Diagrams: Power Mechanics:

Interpretation and reading of blueprints. Development of ability to read and interpret blueprints, charts, instruction and service manuals, and wiring diagrams. Information on the basic principles of lines, views, dimensioning procedures, and notes.

Prerequisite: None.

BPR 1104 Blueprint Reading: Mechanical I:

Interpretation and reading of blueprints. Information on the basic principles of the blueprint; lines, views, dimensioning procedures and notes.

Prerequisite: None.

BPR 1105 Blueprint Reading: Mechanical II:

Further practice in interpretation of blueprints as they are used in industry; study of prints supplied by industry; making plans of operations; introduction to drafting room procedures; sketching as a means of passing on ideas, information and processes.

Prerequisite: BPR 1104.

BPR 1106 Blueprint Reading: Mechanical III:

Advanced blueprint reading and sketching as related to detail and assembly drawings used in machine shops. The interpretation of drawings of complex parts and mechanisms for features of fabrication, construction and assembly.

Prerequisite: BPR 1105.

BPR 1110 Blueprint Reading: Building Trades:

Principles of interpreting blueprints and trade specifications common to the building trades. Development of proficiency in making three view and pictorial sketches.

Prerequisite: None.

BPR 1113 Blueprint Reading: Electrical:

Interpretation of schematics, diagrams and blueprints applicable to electrical installations with emphasis on electrical plans for domestic and commercial buildings. Sketching schematics, diagrams, and electrical plans for electrical installations using appropriate symbols and notes according to the applicable codes will be a part of this course.

Prerequisite: BPR 1110.

BPR 1117 Blueprint Reading: Welding:

A thorough study of trade drawings in which welding procedures are indicated. Interpretation, use and application of welding symbols, abbreviations, and specifications.

Prerequisite: BPR 1104.

T-BUS 101 Introduction to Business:

A survey of the business world with particular attention devoted to the structure of the various types of business organization, methods of financing, internal organization, and management.

Prerequisite: None.

T-BUS 102 Typewriting I:

Introduction to the touch typewriting system with emphasis on correct techniques, mastery of the keyboard, simple business correspondence, tabulation, and manuscripts.

Prerequisite: None.

T-BUS 103 Typewriting II:

Instruction emphasizes the development of speed and accuracy with further mastery of correct typewriting techniques. These skills and techniques are applied in tabulation, manuscript, correspondence, and business forms.

Prerequisite: T-BUS 102 or the equivalent. Speed requirement, 30 words per minute for five minutes.

T-BUS 104 Typewriting III:

Emphasis on production typing problems and speed building. Attention to the development of the student's ability to function as an expert typist, producing mailable copies. The production units are tabulation, manuscript, correspondence, and business forms.

Prerequisite: T-BUS 103 or the equivalent. Speed requirement, 40 words per minute for five minutes.

T-BUS 106 Shorthand I:

A beginning course in the theory and practice of reading and writing shorthand. Emphasis on phonetics, penmanship, word families, brief forms, and phrases.

Prerequisite: None.

T-BUS 107 Shorthand II:

Continued study of theory with greater emphasis on dictation and elementary transcription.

Prerequisite: T-BUS 106 or the equivalent.

T-BUS 108 Shorthand III:

Theory and speed building. Introduction to office-style dictation. Emphasis on development of speed in dictation and accuracy in transcription.

Prerequisite: T-BUS 107.

T-BUS 110 Office Machines:

A general survey of the business and office machines. Students will receive training in techniques, processes, operation and application of the ten-key adding machines, full keyboard adding machines, and calculator.

Prerequisite: None.

T-BUS 112 Filing:

Fundamentals of indexing and filing, combining theory and practice by the use of miniature letters, filing boxes and guides. Alphabetic, Triple Check, Automatic, Geographic, Subject, Soundex, and Dewey Decimal filing.

Prerequisite: None.

T-BUS 114 Law:

An introduction to law covering topics or contracts, torts, negligence, agency, and laws in general.

Prerequisite: None.

T-BUS 115 Business Law I:

A general course designed to acquaint the student with certain fundamentals and principles of business law, including contracts, negotiable instruments, and agencies.

Prerequisites: None.

T-BUS 116 Business Law II:

Includes the study of laws pertaining to bailments, sales, riskbearing, partnership-corporation, mortgages, and property rights.

Prerequisite: T-BUS 115.

T-BUS 120 Accounting I:

Principles, techniques and tools of accounting, for understanding of the mechanics of accounting. Collecting, summarizing, analyzing, and reporting information about service and mercantile enterprises, to include practical application of the principles learned.

Prerequisite: T-MAT 110.

T-BUS 121 Accounting II:

Partnership and corporation accounting including a study of payrolls, federal and state taxes. Emphasis is placed on the recording, summarizing and interpreting data for management control rather than on bookkeeping skills. Accounting services are shown as they contribute to the recognition and solution of management problems.

Prerequisite: T-BUS 120.

T-BUS 123 Business Finance I:

Financing of business units, as individuals, partnerships, corporations, and trusts. A detailed study is made of short-term, long-term, and consumer financing.

Prerequisite: None.

T-BUS 124 Business Finance II:

Financing, federal, state, and local government and the ensuing effects upon the economy. Factors affecting supply of funds, monetary and credit policies.

Prerequisite: T-BUS 123.

T-BUS 126 Machine Shorthand I:

This course presents the basic principles and theory of Stenograph machine shorthand.

Prerequisite: None.

T-BUS 127 Machine Shorthand II:

A continuation of T-BUS 126 with emphasis on machine operation. The development of the ability to take dictation on the Stenograph machine at the rate of 80 words per minute.

Prerequisite: T-BUS 126.

T-BUS 128 Machine Shorthand III:

A continuation of T-BUS 127. The development of the ability to take dictation on the Stenograph machine at the rate of 100 words per minute on straight new matter.

Prerequisite: T-BUS 127.

T-BUS 183E Terminology and Vocabulary:(Executive)

To develop an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in business, technical and professional offices.

Prerequisite: T-BUS 107 or T-BUS 127.

T-BUS 183L Terminology and Vocabulary:(Legal)

To develop an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in business, technical, and professional offices.

Prerequisite: T-BUS 107 or T-BUS 127.

T-BUS 183M Terminology and Vocabulary:(Medical)

To develop an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in business, technical, and professional offices.

Prerequisite: T-BUS 107 or T-BUS 127.

T-BUS 185 Vocabulary Building:

A study of specialized vocabulary which is necessary in successful performance in court and conference reporting. Emphasis on business, engineering and technical terms.

Prerequisite: None.

T-BUS 201 Machine Shorthand IV:

A continuation of T-BUS 128. The development of the ability to take dictation on the Stenograph machine at a minimum of 120 words per minute on straight new matter.

Prerequisite: T-BUS 128.

T-BUS 202 Dictation and Transcription - Court Reporting I:

An introduction to the transcription of machine shorthand on the typewriter. The development of the ability to take dictation on straight new matter at a rate of 120-140 words per minute and to transcribe this dictation in an acceptable manner.

Prerequisite: T-BUS 201.

T-BUS 203 Dictation and Transcription - Court Reporting II:

A continuation of T-BUS 202. Development of ability to take dictation of straight new matter at the rate of 140-160 words per minute and to transcribe at the rate of 25 words per minute.

Prerequisite: T-BUS 202.

T-BUS 204 Dictation and Transcription - Court Reporting III:

A continuation of T-BUS 203. The development of ability to take dictation of straight new matter at the rate of 180-200 words per minute and transcribe at the rate of 30 words per minute.

Prerequisite: T-BUS 203.

T-BUS 205 Advanced Typewriting I:

Emphasis is placed on the development of individual production rates. The student learns the techniques needed in planning and in typing projects that closely approximate the work appropriate to the field of study. These projects include review of letter forms, methods of duplication, statistical tabulation, and the typing of reports, manuscripts and legal documents.

Prerequisite: T-BUS 104. Speed requirement, 50 words per minute for five minutes.

T-BUS 206E Dictation and Transcription I: (Executive)

Develops the skill of taking dictation and of transcribing at the typewriter materials appropriate to the course of study, which includes a review of the theory and the dictation of familiar and unfamiliar material at varying rates of speed. Minimum dictation rate of 100 words per minute required for five minutes on new material.

Prerequisite: T-BUS 108.

T-BUS 206L Dictation and Transcription I: (Legal)

Develops the skill of taking dictation and of transcribing at the typewriter materials appropriate to the course of study, which includes a review of the theory and the dictation of familiar and unfamiliar material at varying rates of speed. Minimum dictation rate of 100 words per minute required for five minutes on new material.

Prerequisite: T-BUS 108.

T-BUS 206M Dictation and Transcription I: (Medical)

Develops the skill of taking dictation and of transcribing at the typewriter

materials appropriate to the course of study, which includes a review of the theory and the dictation of familiar and unfamiliar material at varying rates of speed. Minimum dictation rate of 100 words per minute required for five minutes on new material.

Prerequisite: T-BUS 108.

T-BUS 207E Dictation and Transcription II: (Executive)

Covering materials appropriate to the course of study, the student develops the accuracy, speed, and vocabulary that will enable her to meet the stenographic requirements of business and professional offices. Minimum dictation rate of 110 words per minute required for five minutes on new material.

Prerequisite: T-BUS 206.

T-BUS 207L Dictation and Transcription II: (Legal)

Covering materials appropriate to the course of study, the student develops the accuracy, speed, and vocabulary that will enable her to meet the stenographic requirements of business and professional offices. Minimum dictation rate of 110 words per minute required for five minutes on new material. Prerequisite: T-BUS 206.

T-BUS 207M Dictation and Transcription II: (Medical)

Covering materials appropriate to the course of study, the student develops the accuracy, speed, and vocabulary that will enable her to meet the stenographic requirements of business and professional offices. Minimum dictation rate of 110 words per minute required for five minutes on new material.

Prerequisite: T-BUS 206M.

T-BUS 208E Dictation and Transcription III: (Executive)

Principally a speed building course, covering materials appropriate to the course of study, with emphasis on speed as well as accuracy. Minimum dictation rate of 120 words per minute required for five minutes on new material.

Prerequisite: T-BUS 207.

T-BUS 208L Dictation and Transcription III: (Legal)

Principally a speed building course, covering materials appropriate to the course of study, with emphasis on speed as well as accuracy. Minimum dictation rate of 120 words per minute required for five minutes on new material.

Prerequisite: T-BUS 207.

T-BUS 208M Dictation and Transcription III: (Medical)

Principally a speed building course, covering materials appropriate to the course of study, with emphasis on speed as well as accuracy. Minimum dictation rate of 120 words per minute required for five minutes on new material.

Prerequisite: T-BUS 207.

T-BUS 211 Duplicating Machines:

Instructions in the operation of duplicating machines, including the offset, spirit duplicator, mimeograph, and photocopier.

Prerequisite: None.

T-BUS 213 Office Practice:

Designed to introduce the student to general office practices such as indexing, filing of notes, billing and rudimentary bookkeeping, use of dictating equipment, and other office functions.

Prerequisite: None.

T-BUS 214A Secretarial Procedures I:

Designed to acquaint the student with the responsibilities encountered by a secretary during the work day. These include the following: Receptionist duties, handling the mail, telephone techniques, travel information, telegrams, office records, purchasing of supplies, office organization, and insurance claims.

Prerequisite: None.

T-BUS 214B Secretarial Procedures II:

A continued study of the comprehensive responsibilities of the secretary in the routine and specialized activities associated with the secretary's job. Simulated office routines and practical exercises enable the secretary to develop skill in organization of time and task accomplishment.

Prerequisite: T-BUS 214A.

T-BUS 215E Office Application: (Executive)

During the sixth quarter only, students are assigned to work in a business, technical, or professional office for six hours per week. The objective is to provide actual work experience for secretarial students and an opportunity for the practical application of the skills and knowledge previously learned, according to the course of study.

Prerequisites: T-BUS 214, T-BUS 205, T-BUS 208, T-BUS 211.

T-BUS 215L Office Application: (Legal)

During the sixth quarter only, students are assigned to work in a business, technical, or professional office for six hours per week. The objective is to provide actual work experience for secretarial students and an opportunity for the practical application of the skills and knowledge previously learned, according to the course of study.

Prerequisites: T-BUS 214, T-BUS 205, T-BUS 208, T-BUS 211.

T-BUS 215M Office Application: (Medical)

During the sixth quarter only, students are assigned to work in a business, technical, or professional office for six hours per week. The objective is to provide actual work experience for secretarial students and an opportunity for the practical application of the skills and knowledge previously learned, according to the course of study.

Prerequisites: T-BUS 214, T-BUS 205, T-BUS 208, T-BUS 211.

T-BUS 217 Business Law III:

A study of the powers, policies, methods, and procedures used by the various federal, state, and local administrative agencies in promoting and regulating business enterprises. It includes a consideration of the constitutional and statutory limitations on these bodies and judicial review of administrative action.

Prerequisite: T-BUS 116.

T-BUS 219 Credit Procedures and Problems:

Principles and practices in the extension of credit; collection procedures; laws pertaining to credit extension and collection are included.

Prerequisite: T-BUS 120.

T-BUS 222 Intermediate Accounting I:

An introduction to and review of fundamental processes of accounting. Emphasis is placed upon a thorough working knowledge and understanding of financial statements. Individual items in the balance sheet and income statement are analyzed and evaluated.

Prerequisite: T-BUS 121.

T-BUS 223 Intermediate Accounting II:

A continuation of the study begun in T-BUS 222. The application of accounting principles and concepts to account evaluation and income determination is emphasized. Special problems peculiar to corporations and analyses of financial reports are considered.

Prerequisite: T-BUS 222.

T-BUS 224 Advanced Accounting:

Advanced accounting theory and principles as applied to special accounting problems, bankruptcy proceedings, estates, trusts and parent and subsidiary accounting.

Prerequisite: T-BUS 223.

T-BUS 225 Cost Accounting:

Nature and purposes of cost accounting; accounting for direct labor, materials, and factory burden; job cost, and standard cost principles and procedures; selling and distribution cost; budgets, and executive use of cost figures.

Prerequisite: T-BUS 121.

T-BUS 229 Taxes:

Application of federal and state taxes to various businesses and business conditions. A study of the following taxes: income, payroll, intangible, capital gain, sales and use, excise, and inheritance.

Prerequisite: T-BUS 121.

T-BUS 232 Sales Development:

A study of retail, wholesale and specialty selling. Emphasis is placed upon mastering and applying the fundamentals of selling. Preparation for and execution of sales demonstrations required.

Prerequisite: None.

T-BUS 233 Personnel Management I:

Principles of organization and management of personnel, procurement, placement, training, performance checking, supervision, remuneration, labor relations, fringe benefits and security.

Prerequisite: None.

T-BUS 235 Business Management:

Principles of business management including overview of major functions of management, such as planning, staffing, controlling, directing, and financing. Clarification of the decision-making function versus the operating function. Role of management in business--qualifications and requirements. Prerequisite: None.

T-BUS 237 Wholesaling:

A development of wholesaling, present day trends in the United States. A study of the functions of wholesaling. Prerequisite: None.

T-BUS 239 Marketing:

A general survey of the field of marketing, with a detailed study of the functions, policies, and institutions involved in the marketing process. Prerequisite: None.

T-BUS 243 Advertising:

The role of advertising in a free economy and its place in the media of mass communications. A study of advertising appeals; product and market research; selection of media; means of testing effectiveness of advertising. Theory and practice of writing advertising copy for various media. Prerequisite: None.

T-BUS 245 Retailing:

A study of the role of retailing in the economy including development of present retail structure, functions performed, principles governing effective operation and managerial problems resulting from current economic and social trends. Prerequisite: None.

T-BUS 247 Business Insurance I:

A presentation of the basic principles of risk insurance and their application. A survey of the various types of insurance is included. Prerequisite: None.

T-BUS 251 Court Procedure I:

Designed to give the student a general knowledge of courtroom procedures and practices. Emphasis on structure of the judicial system, types of courts, jurisdictions, and courtroom ethics. Prerequisite: None.

T-BUS 252 Court Procedure II:

Continuation of court procedures with emphasis on trial procedures, appellate procedures, legal documents, deposition forms, and criminal and civil procedures. Prerequisite: T-BUS 251.

T-BUS 253 Court Reporting:

A course of actual court and/or conference reporting practice. Student will spend time in various courtroom situations, and/or conferences or convention

reporting situations.

Prerequisite: T-BUS 201 or ability to take dictation of straight new matter at the rate of 175 words per minute.

T-BUS 255 Interpreting Accounting Records:

Designed to aid the student in developing a "use understanding" of accounting records, reports and financial statements. Interpretation, analysis, and utilization of accounting statements.

Prerequisite: T-BUS 121.

T-BUS 256 Secretarial Procedures:

Designed to acquaint the student with the responsibilities encountered by a secretary during the work day. These include the following: receptionist duties, handling the mail, telephone techniques, travel information, telegrams, office records, purchasing of supplies, office organization, and insurance claims.

Prerequisite: T-BUS 214.

T-BUS 257 Business Insurance II:

A continued study of the principles of insurance, including in-depth study of particular applications of insurance and insurance contracts.

Prerequisite: T-BUS 247.

T-BUS 269 Auditing:

Theory and practices of auditing are emphasized, including standards, procedures and rules of professional conduct. Emphasis is placed on detailed audits, internal auditing and internal control.

Prerequisite: T-BUS 224.

T-BUS 271 Office Management:

Presents the fundamental principles of office management. Emphasis on the role of office management including its functions, office automation, planning, controlling, organizing and actuating office problems.

Prerequisite: None.

T-BUS 272 Principles of Supervision:

Introduces the basic responsibilities and duties of the supervisor and his relationship to superiors, subordinates, and associates. Emphasis on securing an effective work force and the role of the supervisor. Methods of supervision are stressed.

Prerequisite: None.

T-BUS 284M Terminology and Vocabulary: (Medical)

Greater emphasis on an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in business, technical, and professional offices.

Prerequisite: T-BUS 183M.

T-BUS 297 Advanced Typing II:

Continued emphasis is placed upon development of individual production rates.

Planning and typing projects appropriate to the field of study are used to develop depth in understanding of letter forms, methods of duplication, statistical tabulation and ability in typing reports, manuscripts and documents. Prerequisite: T-BUS 205.

T-BUS 298 Advanced Typing III:

Continued emphasis is placed upon development of individual production rates. Planning and typing projects appropriate to the field of study are used to develop depth in understanding of letter forms, methods of duplication, statistical tabulation, and ability in typing reports, manuscripts and documents. Prerequisite: T-BUS 297.

T-BUS 299 Business Communication:

Proper application of the principles of English grammar, diction, sentence structure, spelling, and paragraph development are stressed. The application of these principles is emphasized to develop a high degree of proficiency in office correspondence. Prerequisite: T-ENG 102.

BUS 1103 Small Business Management:

An introduction to the business world, problems of small business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations. Prerequisite: None.

BUS 1105 Industrial Organizations:

Methods, techniques, and practices of modern management in planning, organizing and controlling operations of a manufacturing concern. Introduction to the competitive system and the factors constituting product cost. Prerequisite: None.

CAR 1001 Practical Carpentry I:

An eleven-week course designed to equip individuals with the necessary knowledge and skills to enable them to become employed as practical floor and wall framing carpenters. The student will study the nomenclature, care, use, storage, and safety of hand tools and portable electrical tools used in the carpentry trade. Skills will be developed through practical exercises in laboratory instruction. Prerequisite: None.

CAR 1002 Practical Carpentry II:

This course is a continuation of Practical Carpentry I. The student will study blueprint reading with emphasis on floor plans, foundation plans, sections and details, along with simple specifications. Emphasis will be placed on the layout and the correct measure of framing and finishing structural members. Additional materials will be studied such as tongue and groove lumber, plywood, molding and sub-assemblies such as window and door units. Basic roof framing, interior and exterior trim, along with general construction methods and techniques, will be studied. Prerequisite: CAR 1001.

T-CHM 101 Chemistry:

Study of the physical and chemical properties of substances, chemical changes; elements, compounds, gases, chemical combinations; weights and measurements; theory of metals; acids, bases, salts, solvents, solutions, and emulsions. In addition, study of carbohydrates; electro-chemistry, electrolytes, and electrolysis in their application of chemistry to industry. Prerequisite: None.

T-CHM 111 General Chemistry I:

An introductory chemistry course involving chemical terminology, atomic structure, properties of some elements, and the function of the periodic table. Properties of compounds and mixtures are studied as are types of chemical reactions. Laboratory work consists of various inorganic reactions and preparations.

Prerequisite: None.

T-CHM 112 General Chemistry II:

A study of the properties of elements not covered in T-CHM 101 and a study in greater depth of the combining properties of the elements including equivalent weights. Laboratory work includes chemical reactions and an investigation of properties of solutions.

Prerequisite: T-CHM 111.

T-CHM 121 Quantitative Chemical Analysis I:

Emphasis is placed on developing laboratory techniques employed in the volumetric analysis of acids and bases. The students will become thoroughly familiar with the principles and procedures of neutralization titration. Classroom work will emphasize the stoichiometric calculations involved in interpreting the results of analysis. Laboratory work will consist of percentage analysis of selected substances.

Prerequisite: T-CHM 112.

T-CHM 222 Quantitative Chemical Analysis II:

The more complex types of quantitative analysis. Special emphasis on the theory of oxidation-reduction and gravimetric analysis. Instrumental analysis is introduced and use of modern analytical devices is stressed. The student will become familiar with the principles of redox reactions, ionization constants and pH of solutions. Stress is placed on the stoichiometric calculations of quantitative chemical analysis. Classroom work complements quantitative determinations in the laboratory.

Prerequisite: T-CHM 121.

T-CHM 227 Physical Chemistry:

Atomic theory, states of matter, chemical thermodynamics, molecular properties of solutions, equilibria, phase rule, electrochemistry, kinetics, surface chemistry, and photochemistry constitute major areas of study.

Prerequisite: T-CHM 121.

T-CHM 231 Organic Chemistry I:

Nomenclature, structure, preparation, properties, and reactions of aliphatic organic compounds. Laboratory work emphasized techniques.

Prerequisite: T-CHM 222.

T-CHM 232 Organic Chemistry II:

The nomenclature, structure, preparation, properties, and reactions of aromatic organic compounds. Laboratory work emphasized techniques and involves preparation and analysis of selected organic compounds.

Prerequisites: T-CHM 231, T-CHM 227.

T-CHM 241 Industrial Chemical Analysis I:

An industrial laboratory situation is simulated. Principles and techniques learned in previous quarters are utilized in solution of problems common to local industry. It will be the responsibility of the instructor to determine and submit in outline form a program of suitable scope and sequence of topics which he will work out from consultation with his local advisory committee, representing the industry. This program must be approved by the administration and accepted by the appropriate State-level authority.

Prerequisites: T-CHM 222, T-CHM 227.

T-CHM 242 Industrial Chemical Analysis II:

An industrial laboratory situation is maintained and the emphasis on instrumentation is expanded. Problems of industrial quality control. Plant visitation.

Prerequisite: T-CHM 241.

T-CIV 101 Surveying I:

Theory and practice of plane surveying including taping, differential and profile leveling, cross sections, earthwork computations, transit, stadia and transit-tape surveys.

Corequisites: T-MAT 101, T-DFT 101.

T-CIV 102 Surveying II:

Triangulation of ordinary precision; use of plane table; calculation of areas of land; land surveying; topographic surveys and mapping.

Prerequisite: T-CIV 101.

Corequisites: T-MAT 102, T-DFT 102.

T-CIV 103 Surveying III:

Route surveys by ground and aerial methods; simple, compound, reverse, parabolic and spiral curves; geometric design of highways; highway surveys and plans, including mass diagrams.

Prerequisite: T-CIV 102.

Corequisite: T-MAT 103.

T-CIV 105 Architectural Materials and Methods:

Materials used in the construction of architectural structures will be studied. Field trips to construction sites and study of manufacturer's specifications for materials. Properties and standard sizes of structural materials, and construction techniques are included.

Prerequisite: None.

T-CIV 114 Statics:

Forces, resultants, and types of force systems; moments, equilibrium or coplanar forces by analytical and graphic methods; stresses and reactions

in simple structures; equilibrium of forces in space; static and kinetic friction; center of gravity, centroids, and moment of inertia.

Corequisite: T-MAT 102.

T-CIV 201 Properties of Engineering Materials:

Study and testing of the properties of ferrous and nonferrous metals, timber, stone, clay products, bituminous cementing materials; load and strain measurements; behavior of materials under load; qualities other than strength; control of the properties of the materials; non-destructive tests.

Prerequisite: T-PHY 101.

Corequisite: T-CIV 216.

T-CIV 202 Properties of Soils:

Study of soil types and their physical properties; mechanical analysis and tests of soils; techniques of subsurface investigation; earth pressure theories; bearing capacity; stability of slopes; hydrostatics of ground water; methods of compaction and consolidation.

Prerequisite: T-CIV 216.

T-CIV 204 Surveying IV:

Aerial photogrammetry; applications of aerial surveys; building and road construction surveying; lines and grades for foundation layout, building construction, bridge layout, sewer and pipe line surveys.

Prerequisite: T-CIV 103.

T-CIV 216 Strength of Materials:

Fundamental stress and strain relationship; torsion; shear and bending moments; stresses and deflections in beams; introduction to statically indeterminate beams; columns; combined stresses.

Prerequisite: T-CIV 114.

Corequisite: T-MAT 103.

T-CIV 217 Construction Methods and Equipment:

Excavating methods and equipment used in building and highway construction; pile driving; construction techniques and equipment used in reinforced concrete buildings, bridges, lift-slabs, thin-shells and folded plates, erection methods and equipment of structural steel buildings and bridges; carpentry in house and heavy timber construction; construction safety. Field inspection trips.

Prerequisites: T-DFT 102, T-CIV 102.

T-CIV 218 Plain Concrete:

Study and testing of the composition and properties of concrete including cementing agents, aggregates, admixtures, and air-entrainment; design and proportioning of concrete mixes to obtain pre-determined strengths and properties; methods of placing and curing concrete; standard control tests of concrete.

Corequisite: T-CIV 201. Prerequisite: T-CIV 101.

T-CIV 219 Steel and Timber Construction:

Analysis and basic design of steel beams, tension members, columns, and riveted, high strength bolted, welded connections; study of plate girders,

industrial building roofs and vents, continuous spans, lightweight steel construction; use of American Institute of Steel Construction Manual; introduction to rigid frames and plastic design in steel. Design of timber members and their connections. Field inspection trips.

Prerequisite: T-CIV 216.

T-CIV 220 Construction Planning:

Analysis of construction plant layout requirements and contractor's organization for building and highway projects. Construction scheduling; project control and supervision; coordinating trades on building construction. Operations, charts, and practical application of Critical Path Method (CPM) for construction planning, scheduling, and "Time-cost" determination.

Prerequisites: T-CIV 217, T-CIV 218. Corequisite: T-CIV 223.

T-CIV 221 Reinforced Concrete Construction:

Analysis and design of reinforced concrete beams, floor systems, and columns. Use of CRSI Design Handbook. Introduction to ultimate strength design. Principles of prestressed and precast concrete. Field inspection trips.

Prerequisite: T-CIV 216.

T-CIV 223 Codes, Contracts and Specifications:

Basic principles and methods most significant in contract relationships; appreciation of the legal considerations in construction work; study of the National Building Code and local building codes, interpreting and outlining specification.

Prerequisite: None.

T-CIV 225 Construction Estimates and Costs:

Interpretation of working drawings of timber, structural steel, and reinforced concrete structures and highways; preparation of material and labor quantity surveys from plans and specifications; approximate and detailed estimates of costs, bidding procedures and preparation of bids.

Prerequisite: T-CIV 220.

Corequisite: T-CIV 227.

T-CIV 226 Foundation Construction:

Exploration of sites; study of principles of foundation action; theory and construction practices pertaining to excavation bracing, cofferdams, drainage, stabilization, various types of footings, foundation walls, pile foundations, retaining walls, shoring and underpinning.

Prerequisites: T-CIV 219, T-CIV 221, T-CIV 202.

T-CIV 227 Construction of Roads and Pavements:

Construction practices for various types of road building including soil properties, grading, subgrading, base courses, drainage, embankments, compaction, and formwork. Design, construction, and testing of rigid Portland cement concrete and flexible bituminous pavements. Field inspection trips.

Prerequisites: T-CIV 217, T-CIV 218, T-CIV 202.

T-DFT 101 Technical Drafting I:

The field of drafting is introduced as the student begins study of drawing

principles and practices for print reading and describing objects in the graphic language. Basic skills and techniques of drafting included are: use of drafting equipment, lettering, freehand orthographic and pictorial sketching, geometric construction, orthographic instrument drawing of principal views, and standards and practices of dimensioning. The principles of isometric, oblique, and perspective are introduced.

Prerequisite: None.

T-DFT 102 Technical Drafting II:

The application of orthographic projection principles to the more complex drafting problems, primary and secondary auxiliary views, simple and successive revolutions, and sections and conventions will be studied. Most important is the introduction of the graphical analysis of space problems. Problems of practical design elements involving points, lines, planes, and a combination of these elements shall be studied. Dimensioning practices for "details;" and "working drawings," approved by the American Standard Association will also be included. Introduction is given to intersections and developments of various types of geometrical objects.

Prerequisite: T-DFT 101.

T-DFT 103 Technical Drafting:

Intersections and developments and their practical solutions. Where applicable, model solutions accompany the problems. The various techniques employed to produce and render isometric and oblique drawings, isometric, dimetric and trimetric projections, will be included.

Prerequisite: T-DFT 102.

T-DFT 106 Architectural Drafting I:

A course designed to provide fundamental knowledge of the principles of drafting. Basic skills and techniques of drafting included are: use of drafting equipment, lettering, freehand orthographic and pictorial sketching, geometric construction, orthographic instrument drawing of principal views. Projection problems dealing with principles of descriptive geometry involving points, lines, planes, and connectors. The principles of isometric, oblique, and perspective drawings are introduced.

Prerequisite: None.

T-DFT 107 Architectural Drafting II:

Development of techniques in architectural lettering, symbols, and their interpretation; dimensioning, freehand and instrument drafting. Drawing of construction details, using appropriate material symbols and connections. Sections, scale details and full-size details will be prepared from preliminary sketches. Applications of descriptive geometry are used in visualization and analytical solutions of the drafting problems involving auxiliary views, intersections and developments.

Prerequisite: T-DFT 106.

T-DFT 108 Architectural Drafting III:

An approach in depth to the study of architectural drafting. Development of techniques in architectural lettering, dimensioning, freehand sketching and instrument drawing. Drawings of construction details, using appropriate material symbols and conventions. Working drawings, including plans, elevations, sections, scale details and full-size details will be prepared from preliminary sketches.

Prerequisites: T-DFT 107, T-AHR 106, T-CIV 105.

T-DFT 160 Electronic Drafting:

This course is designed to instill a knowledge and understanding of the basic concepts of both mechanical and electrical drafting. Drafting is taught as a means of communication using the tools of orthographic and isometric projection. Careful attention is paid to proper representation.

The course is designed to develop skills in the mechanical and electrical areas to permit the student to read and make simple drawings. Simplified methods, freehand sketching and the use of standard symbols will be stressed. Throughout the course of study, emphasis will be placed on development of visualization. Wherever possible, the interdisciplinary area of electro-mechanical concepts will be introduced.

Prerequisite: None.

T-DFT 201 Technical Drafting:

Applications and constructions of charts, graphs, and nomographs in engineering and technical data. Screw threads, springs, keys, rivets, piping, and welding symbols, methods of representing and specifying will be covered. Basic mechanisms of motion transfer, gears and cams, will be studied and drawn with emphasis on methods of specifying, calculating, dimensioning and delineating.

Prerequisite: T-DFT 103.

T-DFT 211 Mechanisms :

Mathematical and drafting room solutions of problems involving the principles of machine elements. Study of motions of linkages, velocities and acceleration of points within a link mechanism, layout methods for designing cams, belts, pulleys, gears, and gear trains.

Prerequisites: T-MAT 102, T-DFT 102.

T-DFT 212 Jig and Fixture Design:

Commercial standards, principles, practices and tools of jig and fixture design. Individual project and design work to acquaint students with the types of jigs and fixtures and their design.

Prerequisite: T-DFT 102.

T-DFT 220 Architectural Drafting IV:

Drawing of structural plans and details as prepared for building construction including steel, concrete, and timber structural components. Appropriate details and drawings necessary for construction and fabrication of structural members. Reference materials will be used to provide the draftsman with skills and knowledge in locating data and in using handbooks.

Prerequisite: T-DFT 108.

T-DFT 221 Architectural Drafting V:

Drawing of plans and details as prepared for mechanical equipment such as air conditioning, plumbing and electrical systems by using appropriate symbols and conventions. Consideration is given to coordination of mechanical and electrical features with structural and architectural components.

Prerequisite: T-DFT 220.

T-DFT 222 Architectural Drafting VI:

Preparation of the complete set of working drawings for the architectural

structure. Preparation of millwork drawings, cabinets and built-in equipment detail drawings, and door, window, and room schedules. Site and landscaping plans will be studied and drawn. Final assembly of the complete document for construction purposes will be made.

Prerequisites: T-DFT 221, T-CIV 101, T-DFT 235.

T-DFT 230 Structural Drafting:

A concentrated study and drawing of structural plans, details and shop drawings of the structural components of buildings to include steel, reinforced concrete, and timber structures. Appropriate symbols, conventions, dimensioning practices, and notes as used by the draftsman will be included. Emphasis will be placed on drafting of appropriate drawings for fabrication and erection of the structural components.

Prerequisites: T-DFT 220, T-CIV 105.

T-DFT 231 Architectural Mechanical Equipment Drafting:

A detailed study of mechanical equipment and preparation of plans and detail drawings as prepared by the mechanical engineering consultant or contractor for the architectural structure. Heating and air conditioning, lighting and electrical, plumbing, and other mechanical equipment as necessary for construction will be included in this study. Emphasis will be placed on drafting techniques used in preparing appropriate drawings and details.

Prerequisites: T-DFT 221, T-AHR 106.

T-DFT 233 Office Practice Seminar:

A study of the professional relationship of the architectural firm in relation to clients, contractors, suppliers, consultants and other architects. Ethics of the profession as applicable to the draftsman's role in the architectural firm will be stressed.

Prerequisite: None.

T-DFT 235 Codes, Specifications and Contract Documents:

A study of building codes and their effect in relation to specifications and drawings. The purpose and writing of specifications will be studied along with their legal and practical application to working drawings. Contract documents will be analyzed and studied for the purpose of client-architect-contractor responsibilities, duties and mutual protection.

Prerequisite: T-DFT 220.

T-DFT 236 Construction Estimating and Field Inspecting:

Interpretation of working drawings for a project; preparation of material and labor quantity surveys from plans and specifications; approximate and detailed estimates of cost. The student will study materials take-off, labor take-off, sub-contractors' estimates, overhead costs, and bid and contract procedures. Detailed inspection of the construction by comparing the finished work to the specifications.

Prerequisite: T-DFT 235.

DFT 1118 Pattern Development and Sketching:

Continued study of welding symbols; methods used in layout of sheet steel; sketching of projects, jigs and holding devices involved in welding. Special emphasis is placed on developing pipe and angle layouts by the use of patterns and templates.

Prerequisite: None.

DFT 1121 Mechanical Drafting I:

An introduction to drafting and the study of drafting practices. Instruction is given in the selection, use and care of instruments, singlestroke lettering, applied geometry, freehand sketching consisting of orthographic and pictorial drawings. Orthographic projection, reading and instrument drawing of principal views, single auxiliary views (primary), and double (oblique) auxiliary views will be emphasized. Dimensioning and note practices will be studied with reference to the American Standards Association practices. Methods of reproducing drawings will be included at the appropriate time.

Prerequisite: None.

DFT 1122 Mechanical Drafting II:

The trainee will study simple and successive revolutions and their applications to practical problems. Sections and conventions will be studied and both detail and assembly sections will be drawn. Intersections and developments will be studied by relating the drawing to the sheet metal trades. Models of the assigned drawings will be made from construction paper, cardboard, or similar materials as a proof of the solution to the problems drawn. Methods of drawing and projecting axonometric, oblique, and perspective drawings will be studied with emphasis on the practical applications of pictorial drawings. Various methods of shading will be introduced and dimensioning and sectioning of oblique and axonometric pictorials will be done.

Prerequisite: DFT 1121.

DFT 1125 Descriptive Geometry:

Graphical analysis of space problems. The problems deal with practical design elements involving points, lines, planes, connectors, and a combination of these. Included are problems dealing with solid geometry theorems. Where applicable, each graphical solution shall be accompanied by the analytical solution.

Prerequisite: DFT 1121, MAT 1103.

DFT 1126 Electrical-Electronic Drafting:

A specialization course for electrical-electronic drafting students. Beginning with a review of lettering techniques in freehand and instrument lettering, and covering: abbreviations; electrical, industrial, and electronic schematic symbols; waveform symbols; block and line diagrams; schematic diagrams; component drawings and layout diagrams; layout of printed circuits; and chassis developments and layouts.

Prerequisite: DFT 1122.

DFT 1127 Electrical-Electronic Drafting:

The emphasis in this course will be on the pictorial drawings used in both the electronics and in the electrical power fields. Isometric drawings of electronic and electrical components: cable-formed wiring, wiring assemblies, chassis, chassis assemblies, cable assemblies, and component assemblies; electrical power distribution systems, substation and power line drawings in isometric and diagrammatic drawings. Architectural electrical drawings: electrical plans, riser diagrams, and illumination plans. Graphs, charts and diagrams pertaining to the electrical-electronics field will be included.

Prerequisite: DFT 1126.

DFT 1131 Mechanical Drafting III:

An introduction to mechanical drafting beginning with problems concerning precision and limit dimensioning. Methods of fastening materials; and fasteners: keys, rivets, springs, and welding. Symbols will be studied and drawings will be made involving these items. Principles of design will be introduced with the study of basic mechanisms of motion transfer; gears, cams, power trains, pulleys, belting and methods of specifying and calculating dimensions will be studied. Drawings will be made involving these mechanisms.

Prerequisite: DFT 1122.

DFT 1132 Mechanical Drafting IV:

Principles of design sketching, design drawings, layout drafting, detailing from layout drawings, production drawings and simplified drafting practices constitute areas of study. Forging and casting drawings will be made from layouts. Specifications, parts list and bill of materials are emphasized in this course. The student will develop a complete set of working drawings of a tool, jig, fixture or simple machine and learn principles of design, handbook and manual usage.

Prerequisite: DFT 1131.

DFT 1207 Mechanical Drafting:

An introductory course in drafting for students needing a knowledge of drawing principles and practices for reading and describing objects in the graphic language. The student is expected to gain basic skills in drawing with instruments, geometrical construction, freehand sketching, and describing objects orthographically with principal views and sections.

Prerequisite: BPR 1106.

DFT 1208 Drafting and Descriptive Geometry:

A complete and thorough knowledge of tool and die prints will be required of all students. Industrial prints will be used in this course. The difference between production drawings or operation sheets and tools drawing will be presented. Assembly drawings as the piece fits into place will be broken down into each detail print required.

Prerequisite: DFT 1207.

DFT 1212 Tool Design:

This course will enable the student to plan the process of production and isolate the areas that must be tooled for production. Cost of tools, die work, jig and fixtures, and gauging will be considered. Students will review available items from vendors and utilize standard bushing charts and other references. Typical tool design procedures will be employed and prints must reflect standard procedures.

Prerequisites: DFT 1208, MEC 1204.

T-ECO 102 Economics I:

The fundamental principles of economics including the institutions and practices by which people gain a livelihood. Included is a study of the laws of supply and demand and the principles bearing upon production, exchange, distribution, and consumption both in relation to the individual enterprise and to society at large. Prerequisite: None.

T-ECO 104 Economics II:

Study in depth of principles of economics, including a penetration into the composition and pricing of national output, distribution of income, international trade and finance, and current economic problems.

Prerequisite: T-ECO 102.

T-ECO 108 Consumer Economics:

Designed to help the student use his resources of time, energy, and money to get the most out of life. It gives the student an opportunity to build useful skills in buying, managing his finances, increasing his resources, and to understand better the economy in which he lives.

Prerequisite: None.

T-ECO 201 Labor Economics and Labor Relations:

Emphasis is placed on the history of the labor movement in the United States, the development of methods and strategies by labor organizations and by management, the shift in the means of public control; and the factors of income and economic security.

Prerequisite: T-ECO 104.

T-EDP 101 Functional Wiring Principles:

The fundamental principles of wiring necessary to perform basic machine functions of printing, punching, comparing and selection. A series of laboratory experiments support the theoretical aspects of this course.

Prerequisite: None.

T-EDP 104 Introduction to Data Processing Systems:

Fundamental concepts and operational principles of data processing systems, as an aid in developing a basic knowledge of computers, a prerequisite to the detail study of particular computer problems. This course is a prerequisite for all programming courses.

Prerequisite: None.

T-EDP 108 FORTRAN programming:

Designed to provide the student with sufficient knowledge of programming concepts so that he may easily master any specific system with a minimum of instruction. The student will analyze, evaluate and make minor program modifications. (Specific systems are treated in detail so that the student may learn advanced programming and logical decision making techniques as applied in sophisticated systems.)

Prerequisite: T-MAT 112.

T-EDP 111 Introduction to Computer Technology:

Fundamental concepts and operational principles of data processing systems are given as an aid in developing a basic knowledge of computers. Absolute machine language of the computer is introduced as a prerequisite to detail study of symbolic languages offered later. Business applications are used to write programs in machine language, which include branches, address modification, and loops.

Prerequisite: None.

T-EDP 115 BAL Programming I:

BAL Programming I is designed to prepare the student to program the IBM system 360 in assembler language. Computer instructions and programming techniques are the main topics of instruction.

Prerequisite: T-EDP 101, T-EDP 111.

T-EDP 116 COBOL Programming I:

COBOL Programming I provides the student basic instruction in a problem-oriented, high-level language for the S/360. Programs stress business applications such as payroll, inventory control, banking, and production.

Prerequisite: T-EDP 115.

T-EDP 117 BAL Programming II:

A study of procedures to obtain information and organize data into a system. Various systems will be used as determined by the problem considered, flow charting as an essential part of planning will be presented.

Prerequisite: T-EDP 115.

T-EDP 221 COBOL Programming II:

More sophisticated programming applications in COBOL as a continuation of COBOL Programming I. Student programs cover a wide range of business problems including various programming conventions.

Prerequisite: T-EDP 116.

T-EDP 222 COBOL Programming III (RPG):

This final course in COBOL programming is devoted to writing useful programs utilizing the accumulated knowledge of the language. The final part of this course introduces a new language, RPG, for report generation.

Prerequisite: T-EDP 221.

T-EDP 223 RPG Programming:

RPG is continued with an in-depth study of programming applications of the language. A survey of other current computer languages supplements this course.

Prerequisite: T-EDP 222.

T-EDP 230 Business Programming Projects:

Information systems, problem analysis, system analysis, and programming techniques characterize this project course. Projects consist of initiating and developing a complete program and processing system utilizing languages and techniques previously studied.

Prerequisite: T-EDP 222.

T-EDP 401 Unit Record Equipment Operations:

Unit Record Equipment Operations is skill development oriented and is devoted to developing a high degree of operation skill and understanding

in the use and application of supporting equipment found in an electronic data processing complex. Emphasis is placed on the development of a functional understanding of how each piece of equipment operates, of causes and cures of machine stoppages, of operational techniques required to achieve maximum output, and sequential scheduling of equipment to optimize job through-put time in the system process. Time is allowed to acquire operator skill on such equipment as the accounting machine, sorter, reproducer, interpreter, key punch, verifier, and collator. Additional time is used to acquaint the student with the functional operation of the computer console and directly related supporting equipment.

Prerequisite: T-EDP 101, T-EDP 111.

T-EDP 402 Systems Operations:

Data Processing System Operations is job production oriented and is devoted to developing a comprehensive understanding of the processes and procedures related to job planning, job operations and equipment application. The student acquires a proficiency in operational skills required to process complete data evaluation packages at production rates with attention to a high degree of detail and accuracy stressed. Emphasis is placed upon job analysis and flow charting, reading and writing run sheets, handling techniques, and total file maintenance. The importance of effective operator preventative maintenance, of rapid and accurate job stoppage analysis and correction, of ~~continuous~~ environmental control, of proper equipment set-up and operation, and of maintaining the required level of inventory control is stressed throughout the course.

Prerequisites: T-EDP 101, T-EDP 111.

EDU 1026 General Studies I:

Fundamentals of English and mathematics required for short course graduates.

Prerequisite: None.

EDU 1027 General Studies II:

Continuation of REM 0001X. Fundamentals of English and mathematics required for certificate program graduates.

Prerequisite: EDU 1026.

EDU 1031 General Studies--Health:

General studies, including fundamentals of English and mathematics, required for health occupations short course graduates.

Prerequisite: None.

T-ELC 101 Fundamentals of Electricity I:

Elementary principles of electricity including: basic electric units, Ohm's law, Kirchhoff's law, network theorems, magnetism, basic electrical measuring instruments, inductance, capacitance, sine wave analysis, and non-resonant resistive, inductive and capacitive networks.

Prerequisite: None.

T-ELC 102 Fundamentals of Electricity II:

Series and parallel resonant-circuit analysis, resonant and non-resonant transformer analysis, basic diode power supply analysis, introduction to non-linear resistive control devices, and introduction to electromechanical devices.

Prerequisite: T-ELC 101.

T-ELC 215 Electrical Machines:

Principles of direct-current generators and motors, types and characteristics; alternating-current generators, transformers, three-phase motors, synchronous motors and single-phase motors.

Prerequisite: T-ELC 102.

T-ELC 220 Electrical Instrumentation:

Electrical meters and their movements: indicating, integrating, recording; instrument transformers; and special metering applications. Care, operation, calibration and maintenance of electrical meters and instruments.

Prerequisite: T-ELN 101.

T-ELC 225 Electrical Controls and Circuits:

An introduction to control systems for acceleration, speed, and braking. Alternating current contactors and relays, drum controllers, wye-delta starters, overload and overvoltage protection and sensing devices. Typical control systems; motor control, field control; controls for air conditioning, refrigeration and heating.

Prerequisite: T-ELC 215.

T-ELC 230 Electrical Power Systems:

A familiarization with power plants, switch gear and circuit breakers, plant distribution, transmission lines and lightning protection.

Prerequisite: T-ELC 225

T-ELC 235 Planning Electrical Installations:

A familiarization with the National Electrical Code; the power requirements and typical design of industrial and commercial installations. Design and calculation of illumination and electric heating systems.

Prerequisite: T-ELC 225.

T-ELC 240 Electrical Analysis and Maintenance:

An introduction to troubleshooting techniques of the common problems of direct current and alternating current machines, transformers, circuit breakers and regulators. Emphasis will be on scheduling of maintenance, lubrication; and principles of plant maintenance.

Prerequisites: T-ELC 225, T-ELN 208.

T-ELC 250 Illumination and Estimating:

Study of light sources, luminaries, illumination levels and interior lighting layouts; roadway lighting and flood-lighting design. Analysis of plans and specifications for the preparation of electrical estimates covering industrial, commercial and residential wiring installations.

Prerequisites: T-PHY 104, T-ELC 102.

ELC 1102 Applied Electricity:

The use and care of test instruments and equipment used in servicing electrical apparatus for air conditioning and refrigeration installations. Electrical principles and procedures for trouble-shooting of the various electrical devices used in air conditioning, heating, and refrigeration equipment. Included will be transformers, various types of motors and starting devices, switches, electrical heating devices and wiring.

Prerequisite: PHY 1101.

ELC 1112 Direct and Alternating Current:

A study of the structure of matter and the electron theory, the relationship between voltage, current and resistance in series, parallel and series-parallel circuits. Analysis of direct current circuits by Ohm's law and Kirchhoff's law; sources of direct current potentials. Fundamental concepts of alternating current flow; a study of reactance, impedance, phase angle, power and resonance and alternating current circuit analysis.

Prerequisite: None.

ELC 1113 Alternating Current and Direct Current Machines and Controls:

Provides fundamental concepts in single and polyphase alternating current circuits, voltages, currents, power measurements, transformers, and motors. Instruction in the use of electrical test instruments in circuit analysis. The basic concepts of AC and DC machines and simple system controls. An introduction to the type control used in small appliances such as: thermostats, timers, or sequencing switches.

Prerequisites: ELC 1112.

ELC 1121 Electrical Machines and Controls:

An introduction to the construction, operation and utilization of direct current and alternating current machines. Familiarization with the various types of machine control devices.

Prerequisite: None.

ELC 1124 Residential Wiring:

Provides instruction and application in the fundamentals of blueprint reading, planning, layout, and installation of wiring in residential applications such as: services, switchboards, lighting, fusing, wire sizes, branch circuits, conduits, National Electrical Code regulations in actual building mock-ups.

Prerequisites: ELC 1113.

ELC 1125 Commercial and Industrial Wiring:

Layout, planning, and installation of wiring systems in commercial and industrial complexes, with emphasis upon blueprint reading and symbols, the related National Electrical Codes, and the application of the fundamentals to practical experience in wiring, conduit preparation, and installation of simple systems.

Prerequisite: ELC 1124.

ELC 1201 Electricity - Industrial:

Introduction to electricity and applications for the tool and die maker's

occupation. Familiarization with electrical schematics and circuit diagrams, symbols and conventions. Operation of electrical devices and controls such as motors, relays, solenoids, microswitches, etc.

T-ELM 201 Digital Computer Fundamentals:

The fundamentals of digital computers are studied for a non-mathematical approach. The student is first introduced to general purpose computing systems and the concept of a stores program computer. The basic ideas of programming are presented to develop an understanding of the logical organization of a digital system. The study of peripheral equipment touches upon card readers and punches, printers, tape and disk drives.

Prerequisite: T-EDP 104.

T-ELM 202 Electromechanical Components:

An in-depth study of mechanisms as they are specifically related to use in business machines and data processing machines applying the principles and concepts learned in the course of mechanisms. Laboratory projects will give the student "hands on" knowledge of these mechanisms as individual units and as part of an overall electromechanical system.

Prerequisite: T-MEC 161.

T-ELM 203 Control Systems I:

This course is designed to develop an understanding of basic systems and the devices used in these systems. In class the systems and devices will be analyzed. In the laboratory the student will connect, operate, adjust, and test the various devices individually and in simple systems.

Prerequisite: T-ELC 102.

T-ELM 211 Digital Computing Systems I:

A study of the computer as a system: its external data forms and function, data input, program flow charts, instructions, programs. The use of the digital computer and its peripheral equipment as a total system requires understanding of man-to-computer communication, thus 1401 machine language, SPS, is presented. The course will provide the student with basic understanding and with practical applications of software and hardware data processing system concepts.

Prerequisite: T-ELM 201.

T-ELM 212 Control Systems II:

A continuation of the study of control systems designed to develop an understanding of basic systems and the devices used in these systems. In class the systems and devices will be analyzed and in the laboratory the student will connect, operate, adjust, and test the various devices individually and in simple systems.

Prerequisite: T-ELM 203.

T-ELM 213 Input and Output Devices:

Input and output requirements of a computing system are discussed,

introducing the student to types of devices in typical systems. Individual equipments are presented with the object of stressing mechanical, electrical and logical principles of operation.

Prerequisite: T-ELM 201, T-ELM 203.

T-ELM 221 Digital Computing Systems II:

A continuation study of the computer as a system. The use of the digital computer and its peripheral equipment as a total system requires an understanding of the 1401 language. SPS and AUTOCODER are presented in some depth. Other languages are considered, such as COBOL and FORTRAN. The course will foster in the student a deeper understanding of the ways in which data processing systems can be utilized in modern scientific, commercial and industrial endeavors. It will also promote an appreciation by the student of his place in the rapidly changing world of computers, automation and data processing systems.

Prerequisite: T-ELM 211.

T-ELM 222 Electromechanical Systems Evaluation and Analysis:

A course of study devoted to developing a high degree of proficiency in analyzing electromechanical systems. Units of study will stress analyzing for functional purpose, interpreting operating procedures and specifications, developing techniques to facilitate detection of error and analysis of failure for corrective action, and establishing meaningful preventive maintenance routines. Instruction stresses various types of electromechanical systems which require an in-depth understanding of the principles studied in previous courses. Laboratory exercises and assignments will emphasize individual study of equipment manuals including installation, maintenance, operating, and consumer oriented manuals. As a final requirement, the student is expected to develop the procedures and information formats in order to test and report on the operational condition of a total system and its sub-systems or components.

Prerequisite: T-ELM 212.

T-ELM 223 Storage Principles and Devices:

A study of storage as a basic need in computer systems including temporary, permanent, partial and final. Fundamental information pertaining to addressing, access, synchronization and characteristics of the various media is included. The course will introduce storage as a dominant need in computing systems, present the electronic and electromechanical devices that are used as storage devices, and supplement theory with laboratory practice for reinforcement of theoretical concepts.

Prerequisite: T-ELM 201.

T-ELM 224 Practicum in Electromechanical Technology

Individual study projects involving selected aspects of Electromechanical Technology provide a base for developing self-directed and self-supervised work habits consistent with industrial requirements. Instructor supervision is provided on an individual basis during the hours set aside for laboratory. Instructional support will include assisting the student to select and design a meaningful project and in providing him with sufficient guidance to enable him to most effectively benefit from the project. Projects where possible involve systems or components in the industrial setting.

Prerequisite: T-ELM 222.

T-ELN 101 Electronic Instruments and Measurements:

A study of basic electronic instruments, their theory of operation, function, tolerances, and calibration. Both service and laboratory instruments will be studied. Laboratory experience will provide application of each type instrument studied.

Prerequisite: T-ELC 102.

T-ELN 105 Control Devices:

A study in depth of the electrical characteristics of vacuum tubes and transistors. Basic parameters and applications of each type device to the three configurations of a three terminal two port system will be included.

Prerequisite: T-ELC 102.

T-ELN 201 Industrial Controls:

Industrial controls is the study of modern methods of controlling machinery by electronic circuitry. Machinery controls and electronic mechanisms that automatically operate machines will be studied. Types of motors, generators, control signals and devices, thyratrons, gates, switches, and servomechanism circuits are major areas of study.

Prerequisite: T-PHY 103.

T-ELN 205 Applications of Vacuum Tubes and Transistors:

Practical applications of vacuum tubes and transistors to basic audio amplifiers, radio frequency amplifiers, detectors, modulators and oscillators.

Prerequisite: T-ELN 105.

T-ELN 208 Industrial Electronics:

Electronics as applied to a production system; rectification; electronically controlled rectifiers, servomechanisms, motors; magnetic amplifiers; ultrasonic cleaning; and variable strobe light.

Prerequisite: T-ELN 105.

T-ELN 210 Semiconductor Circuit Analysis:

A study in depth of the analysis and design of transistor circuits. Network theorems and equivalent circuits are used extensively in evaluating total circuit performance. Device peculiarities and limitations pertinent to reliable operations are considered. H.Y.Z. and T. parameters are employed as well as signal-flow graphs.

Prerequisite: T-ELC 102.

T-ELN 214 Wave Shaping and Pulse Circuits I:

Broadband amplifiers, magnetic amplifiers, multivibrators, wave shaping techniques, chopper amplifiers, clipper and clamper circuits.

Prerequisite: T-ELN 101.

T-ELN 215 Wave Shaping and Pulse Circuits II:

Pulse techniques, diode switches, gates, step-counters, restorers and other specific circuits which function as switches.

Prerequisite: T-ELN 214.

T-ELN 220 Electronic Systems :

A block diagram course investigating numerous electronic systems. Modules

or blocks of various circuits already studied are arranged in various manners to produce complex electronic systems. Systems will be explained and reduced to functions and then to block diagrams. AM, FM, and Single Side-band transmitters and receivers, multiplexing, TV transmitters and receivers, pulse-modulated systems, computers, telemetry, navigational systems, sonar and radar will be considered.

Corequisite: T-ELN 215. Prerequisite: T-ELN 205.

T-ELN 225 Transmission and Propagation:

An introduction to the electromagnetic radiation, principles of antenna, radiation patterns and field strength. The characteristics and use of transmission lines in radio frequency application. Factors involved in propagation, ground waves, reflections, sky waves, atmospheric effects, ionosphere, fading, noise, static, wire radiators, directive gain, effect of ground, impedance, antenna systems and arrays.

Prerequisite: T-ELN 205.

T-ELN 227 UHF and Microwave Systems:

A study of UHF and VHF components, circuits, and measurement techniques. The use of distributed constant elements, waveguides and coaxial cables, microwave links, high-frequency oscillators, magnetrons, klystrons, traveling wave tubes. An introduction to the use of the Smith Chart.

Prerequisite: T-ELN 225.

T-ELN 230 Television Systems:

A study of the principles of television including the television system, camera tubes, scanning and synchronization, composite video signal, receiver circuits, transmitting equipment, color television, and closed-loop systems.

Corequisite: T-ELN 214. Prerequisite: None.

T-ELN 235 Industrial Instrumentation:

Broad introduction to use of industrial electro-mechanical and electronic circuits and equipment. Provides an understanding of the methods, techniques, and skills required for installation, service and operation of a variety of industrial control systems. Analysis of sensing devices for detecting changes in pressure, temperature, humidity, sound, light, electricity, the associated circuitry and indicating and recording devices.

Prerequisite: T-ELN 205.

T-ELN 240 Digital Computers:

An exploration into the methodology of counting and computing. Various computer techniques will be investigated including: non-sinusoidal waveforms, binary and decade counters, industrial counters, readout devices, logic circuits, arithmetic circuits, storage devices, input-output devices, computer control, analog and digital converters.

Prerequisite: T-ELN 214.

T-ELN 245 Electronic Design Project:

Students are required to design and construct a project approved by the instructor. Includes selection of project, design, construction, and testing of completed project. Projects may include: AM or FM transmitters or receivers, amplifiers, test equipment, control devices, simple counters, lasers, masers, etc.

Prerequisite: T-ELN 205.

ELN 1118 Industrial Electronics:

Basic theory, operating characteristics, and application of vacuum tubes such as: diodes, triodes, tetrodes, pentodes, and gaseous control tubes. An introduction to amplifiers using triodes, power supplies using diodes, and other basic applications.

Prerequisites: MAT 1115, ELC 1112.

ELN 1119 Industrial Electronics:

Basic industrial electronic systems such as: motor controls, alarm systems, heating systems and controls, magnetic amplifier controls, welding control systems using thyatron tubes, and other basic types of systems commonly found in most industries.

Prerequisite: ELN 1118.

ELN 1121 Electronic Fundamentals:

Basic electronic theory and practice with emphasis on component identification, color codes, schematics, layout techniques. Introduction to typical electronic systems as found in industry.

Prerequisites: PHY 1102, ELC 1121.

ELN 1122 Vacuum Tubes and Circuits:

An introduction to vacuum tubes and their development; the theory, characteristics and operation of vacuum diodes, semi-conductor diodes, rectifier circuits, filter circuits, triodes and simple voltage amplifier circuits.

Prerequisites: ELC 1112, MAT 1115.

ELN 1123 Amplifier Systems:

An introduction of commonly used servicing techniques as applied to monophonic and stereophonic high-fidelity amplifier systems and auxiliary equipment. The operation and servicing of inter-communication amplifiers and switching circuits will also be taught.

Prerequisite: ELN 1125.

ELN 1125 Radio Receiver Servicing:

Principles of radio reception and practices of servicing; included are block diagrams of radio receivers, servicing techniques of AM and FM receivers by resistance measurements, signal injection, voltage analysis, oscilloscope methods of locating faulty stages and components and the alignment of AM and FM receivers.

Prerequisite: ELN 1122.

ELN 1126 Transistor Theory and Circuits:

Transistor theory, operation, characteristics and their application to audio and radio frequency amplifier and oscillator circuits.

Prerequisite: ELN 1122.

ELN 1127 Television Receiver Circuits and Servicing: Black and White:

A study of principles of television receivers, alignment of radio and intermediate frequency amplifiers, adjustment of horizontal and vertical sweep circuits will be taught. Techniques of troubleshooting and repair of TV receivers with the proper use of associated test equipment will be stressed. Additional study of more specialized servicing techniques and oscilloscope

waveform analysis will be used in the adjustment, troubleshooting and repair of the color television circuits.

Prerequisite: ELN 1122.

ELN 1128 Television Receiver Circuits and Servicing: Color:

This course, taught in conjunction with an elective, will be a shortened version of ELN 1127.

Prerequisite: ELN 1127.

ELN 1129 Single Side-band Systems:

An introductory course of single side-band transmission system with carrier frequency or without, and the associated balanced modulator of phasing system used to produce this type of transmission. Time will be allotted also to the necessary circuitry in the receiver to receive this type of transmission.

Prerequisites: ELN 1126, ELN 1125.

ELN 1130 Two-way Mobile Maintenance:

A course to acquaint the student with the theory and maintenance of fixed station and mobile station transmitters and receivers. Except for radio laws, sufficient information will be given to qualify the student to take the FCC second class radiotelephone license examination.

Prerequisite: ELN 1125.

ELN 1146 FCC Rules and Regulations:

A course designed to enable the student to obtain a Third Class Radiotelephone Operator's License with broadcast endorsement. Covers subject matter in Part 13 of FCC Rules and Regulations, primary and basic radiotelephone procedures in general. Completion of this course should give the student a thorough grasp of Element 1, Basic Law, Element 2, Basic Operating Procedure, and Element 9, Basic Broadcast, as covered in the Commission's examination.

Prerequisite: MAT 1115.

T-ENG 101 Grammar:

Designed to aid the student in the improvement of self-expression in grammar. The approach is functional with emphasis on grammar, diction, sentence structure, punctuation, and spelling. Intended to stimulate students in applying the basic principles of English grammar in their day-to-day situations in industry and social life.

Prerequisite: None.

T-ENG 102 Composition:

Designed to aid the student in the improvement of self-expression in business and technical composition. Emphasis is on the sentence, paragraph and whole composition.

Prerequisite: T-ENG 101.

T-ENG 103 Report Writing:

The fundamentals of English are utilized as a background for the organization and techniques of modern report writing. Exercises in developing typical

reports, using writing techniques and graphic devices are completed by the students. Practical application in the preparation of a full-length report is required of each student at the end of the term. This report must have to do with something in his chosen curriculum.

Prerequisite: T-ENG 102.

T-ENG 198 Business English:

Grammar, diction, sentence structure, punctuation, and spelling are emphasized to improve self-expression. Application of the basic principles of English grammar in day-to-day situations in business communications.

Prerequisite: T-ENG 101.

T-ENG 199 Spelling:

Designed to develop spelling proficiency and an understanding of the need for perfect spelling in office and secretarial work. Common misspelled words and rules and methods needed to spell correctly are studied.

Prerequisite: None.

T-ENG 204 Oral Communication:

A study of basic concepts and principles of oral communications to enable the student to communicate with others. Emphasis is placed on the speaker's attitude, improving diction, voice, and the application of particular techniques of theory to correct speaking habits and to produce effective oral presentation. Particular attention given to conducting meetings, conferences, and interviews.

Prerequisite: T-ENG 101.

T-ENG 206 Business Communication:

Develops skills in techniques in writing business communications. Emphasis is placed on writing action--getting sales letters and prospectuses. Business reports, summaries of business conferences, letters involving credit, collections, adjustments, complaints, orders, acknowledgements, remittances, and inquiry.

Prerequisite: T-ENG 102.

ENG 1101 Communication Skills:

A concentrated and sustained effort to improve the student's ability to read and to comprehend what he reads. Includes vocabulary building, grammar, sentence structure, paragraph development, and oral communication. The course is intended to stimulate students in applying these skills in further study and in their day-to-day situations in industry and social life.

Prerequisite: None.

ENG 1102 Communication Skills:

Designed to promote effective communication through correct language usage in speaking and writing.

Prerequisite: ENG 1101.

ENG 1103 Report Writing:

Development of ability to communicate effectively through the medium of good language usage in speaking and writing. Organizing thoughts, and presenting thoughts effectively in connection with problems.

Prerequisite: ENG 1102.

T-ISC 102 Industrial Safety:

Problems of accidents and fire in industry. Management and supervisory responsibility for fire and accident prevention. Additional topics cover accident reports and the supervisor; good housekeeping and fire prevention; machine guarding and personnel protective equipment; state industrial accident code and fire regulations; the first aid department and the line of supervisory responsibility; job instruction and safety instruction; company rules and enforcement; use of safety committees; insurance rules and enforcement; use of safety committees; insurance carrier and the Insurance Rating Bureau; and advertising and promoting a good safety and fire prevention program.

Prerequisite: None.

T-ISC 120 Principles of Industrial Management:

The basic managerial decisions; organizational structure including plant location, building requirements, and internal factory organization; problems of factory operation and control, planning, scheduling, routing factory production, stores control, labor control, purchasing, cost control. Plant problems are utilized as lab experiments.

Prerequisite: None.

T-ISC 202 Quality Control:

Principles and techniques of quality control and cost saving. Organization and procedure for efficient quality control. Functions, responsibilities, structure, costs, reports, records, personnel and vendor-consumer relationships in quality control. Sampling inspections, process control and tests for significance.

Prerequisite: T-MAT 214.

T-ISC 203 Motion Study:

Types of methods studies and their applications. Process charts, analysis sheets, time study, work simplification, skill and effort rating.

Prerequisite: None.

T-ISC 204 Value Analysis:

The modern concept in the control of manufacturing production. This course will provide the students an opportunity to study a production system with the specific purpose of identifying unnecessary costs. The objective of the concepts and techniques of value analysis is to make possible a degree of effectiveness in identifying and removing unnecessary cost by the use of sound decisions through a common sense approach.

Prerequisite: T-MEC 217.

T-ISC 209 Plant Layout:

A practical study of factory planning with emphasis on the most efficient arrangements of work areas to achieve lower manufacturing costs. Layouts for small and medium-sized plants, layout fundamentals, selection of production equipment and materials handling equipment. Effective management of men, money and materials in a manufacturing operation.

Prerequisites: T-DFT 102, T-ISC 202, T-MEC 217.

T-ISC 210 Job Analysis and Evaluation:

This study is based on product studies as well as personnel and wage program. The course utilizes the study of product design, value analysis, materials and processes as an intricate part of productive procedures. Prerequisite: None.

T-ISC 211 Work Measurement:

Principles of work simplification including administration of job methods improvement, motion study fundamentals and time study techniques. Use of flow and process charts; multiple activity charts, operation charts, flow diagrams and methods evaluation.

Prerequisite: T-ISC 210.

T-ISC 220 Management Problems:

A study of personnel and production problems from the standpoint of the executive. Includes selection and development of products, control problems and techniques, development of standards, employee-employer relations, developing the executive staff. Case studies are utilized.

Prerequisite: T-ISC 120.

T-ISC 231 Manufacturing Cycles:

Purchasing and distribution costs; consumption patterns; channels of distribution; marketing of consumer goods; shopping, specialty, agricultural and industrial goods; service marketing; functional middlemen; speculation and hedging; wholesaling; shipping and warehousing; exporting and trade movements; standardization and grading; pricing, government regulation of competition; sales promotional activities; merchandising practices.

Prerequisite: None.

MAS 1001 Practical Bricklaying I:

Practical Bricklaying I is a course designed to provide the student with the skills necessary to lay brick to a line, construct simple corners and foundation walls, and piers. Lecture and laboratory experiences will be coordinated to provide a balanced development of knowledge and skill in blueprint reading, measurements, related mathematics, and manipulative skills.

Prerequisite: None.

MAS 1002 Practical Bricklaying II:

Practical Bricklaying II is a continuation of Practical Bricklaying I. The course is designed to further the student's skill in the art of laying brick and to increase his knowledge of the types of brick construction. Lecture and laboratory exercises will involve techniques and construction of such items as corners, bonds, pilasters, walls, buttresses, and fireplaces.

Prerequisite: MAS 1001.

T-MAT 101 Technical Mathematics I:

The real number system is developed as an extension of natural numbers. Number systems of various bases are introduced. Fundamental algebraic operations, the rectangular coordinate system, as well as fundamental trigonometric concepts and operations are introduced. The application of these principles to practical problems is stressed.

Prerequisite: Satisfactory evidence that admission requirements have been met.

T-MAT 102 Technical Mathematics II:

A continuation of T-MAT 101. Advanced algebraic and trigonometric topics including quadratics, logarithms, determinants, progressions, the binomial expansion, complex numbers, solution of oblique triangles and graphs of the trigonometric functions are studied in depth.

Prerequisite: T-MAT 101.

T-MAT 103 Technical Mathematics III:

The fundamental concepts of analytical geometry, differential and integral calculus are introduced. Topics are graphing techniques, geometric and algebraic interpretation of the derivative, differentials, rate of change, the integral and basic integration techniques. Applications of these concepts to practical situations are stressed.

Prerequisite: T-MAT 102.

T-MAT 104 Mathematics of Finance:

The usual business mathematics review of elementary mathematics will be omitted because of the prerequisite. The course consists of applied business mathematics with emphasis on the topics which can be implemented on a computer. The course will include interest, present value, discount, compound interest, annuities, extinction of debts, and depreciation.

Prerequisites: T-MAT 112.

T-MAT 110 Business Mathematics I:

This course stresses the fundamental operations and their application to business problems. Topics covered include payrolls, price marking, interest and discount, commission, taxes, and pertinent uses of mathematics in the field of business.

Prerequisite: None.

T-MAT 111 EDP Mathematics I:

This course provides an in-depth review of basic mathematical concepts which include arithmetic notations and fundamental algebraic operations. Emphasis is placed upon definitions, logical methods of solving problems, and developing the ability to apply these concepts accurately and effectively.

Prerequisite: None.

T-MAT 112 EDP Mathematics II:

The study of algebra is continued from T-MAT 111 to strengthen the student's ability in more advanced fundamentals of algebra. The course provides for

an introduction to trigonometry with emphasis toward application in data processing.

Prerequisite: T-MAT 111.

T-MAT 113 Business Mathematics II:

A continuation of T-MAT 110. Annuities, sinking funds, amortization of mortgages, payroll, cash and trade discounts, mathematics of merchandising, profit and loss, mathematics of taxes, insurance and securities.

Prerequisite: T-MAT 110.

T-MAT 121 Numbering System and Boolean Algebra:

A cursory treatment of the base-ten numbering system; functional introduction to numbering systems with bases other than 10, transformation from one system to another; fundamental operation in systems other than the decimal; a detailed study of the binary system in relation to machine calculations; principles of Boolean Algebra and its contribution to digital devices and data processing.

Prerequisite: None.

T-MAT 201 Technical Mathematics IV:

A continuation of T-MAT 103. More advanced concepts of differentiation and integration are considered. Included are graphs and derivatives of the trigonometric functions, exponential and logarithmic differentiation and integration, advanced integration techniques, polar equations, parametric equations and Fourier series.

Prerequisite: T-MAT 103.

T-MAT 208 Calculus and Laplace Transforms for Electronics:

An investigation of the methods of calculus which are of the most direct use in the study of electronic circuits. Introduction to selected topics from differential equations and Laplace transforms and applications of these methods to the solution of electronic circuit problems.

Prerequisite: T-MAT 201.

Corequisite: T-ELN 214.

T-MAT 214 Statistics:

The theory of statistics and its application in modern business. Kinds of regularity that exist among random fluctuations. Experience in associating and using mathematical models to interpret physical phenomena and predicting the outcomes of experiments related to practical business problems.

Prerequisite: T-MAT 101 or T-MAT 112.

T-MAT 215 Statistics:

Practical experiences in the statistical solution of business problems through the use of computers. Methods of organizing, presenting and interpreting data.

Prerequisite: T-MAT 214.

T-MAT 219 Differential Equations:

Methods of solving first-order and simple higher order ordinary differential equations and linear differential equations with constant coefficients; solution

of differential equations by series; and numerical solutions of differential equations.

Prerequisite: T-MAT 201.

MAT 1101 Fundamentals of Mathematics:

Practical number theory. Analysis of basic operations: addition, subtraction, multiplication and division. Fractions, decimals, powers and roots, percentages, ratio and proportion. Plane and solid geometric figures used in industry; measurements of surfaces and volumes. Introduction to algebra used in trades. Practice in depth.

Prerequisite: None.

MAT 1102 Algebra:

Basic concepts and operations of algebra: historical background of our base-10 number system; algebraic operations: addition, subtraction, multiplication and division; fractions, letter representation, grouping, factoring, ratio and proportions, variation; graphical and algebraic solution of first degree equations; solution of simultaneous equations by: addition and subtraction, substitution, graphing; exponents, logarithms, tables and interpolation.

Prerequisite: None.

MAT 1103 Geometry:

Fundamental properties and definitions; plane and solid geometric figures, selected general theorems, geometric construction of lines, angles and plane figures. Dihedral angles, areas of plane figures, volumes of solids. Geometric principles are applied to shop operations.

Prerequisite: None.

MAT 1104 Trigonometry:

Trigonometric ratios; solving problems with right triangles, using tables, and interpolating; solution of oblique triangles using law of sines and law of cosines; graphs of the trigonometric functions; inverse functions, trigonometric equations. All topics are applied to practical problems.

Prerequisites: MAT 1103.

MAT 1115 Electrical Mathematics I:

A study of fundamental concepts of algebra; basic operations of addition, subtraction, multiplication, and division; solution of first order equations, use of letters and signs, grouping, factoring, exponents, ratios, and proportions, solution of equations, algebraically and graphically; a study of logarithms and use of tables; an introduction to trigonometric functions and their application to right angles; and a study of vectors for use in alternating current.

Prerequisite: None.

MAT 1116 Electrical Mathematics II:

In depth treatment to give a working knowledge of the powers of 10, Ohm's Law for series and parallel circuits, quadratic equations, Kirchhoff's Laws, trigonometric functions, plane vectors, alternating currents, vector algebra and logarithms.

Prerequisite: MAT 1115.

MAT 1123 Machinist Mathematics:

Introduces gear ratio, lead screw and indexing problems with emphasis on application to the machine shop. Practical applications and problems furnish the trainee with experience in geometric propositions and trigonometric relations to shop problems; concludes with an introduction to compound angle problems.

Prerequisite: MAT 1104.

MAT 1203 Trigonometry:

A basic review of mathematics will form a foundation for a study of trigonometry of right triangles, vectors, coordinate systems, logarithmic and dimensional analysis. Applications to typical problems found in the tool and die shop will be presented and solutions will be found by using mathematics.

Prerequisite: None.

MAT 1204 Compound Angles and Curves:

The application of trigonometry and geometry will be presented to solve compound angles. This course will use as many practical problems as possible to enable the student to work with typical problems in compound angles and curves without points of generation.

Prerequisite: MAT 1203.

T-MEC 111 Manufacturing Processes I:

A survey of manufacturing processes, machines, tools, and devices with regard to their capabilities, capacities, tolerances, finishes, etc. Product design, materials utilized, engineering nomenclature, and common terminology will be discussed.

Prerequisite: None

T-MEC 112 Manufacturing Processes II:

Process planning of operation sequences for efficient production, tool planning, and estimating. An introduction to metallurgy as well as characteristics of non-metallic materials.

Prerequisite: T-MEC 111.

T-MEC 160 Mechanisms I:

The study of fundamental concepts as found in basic mechanical and electromechanical mechanisms. These mechanisms will be studied in terms of their function, specifications and operating characteristics. In the laboratory these mechanisms will be studied with respect to their input and output characteristics. Emphasis will be placed on practical application of principles studied in the mechanical system.

Prerequisites: T-MAT 101, T-PHY 101.

T-MEC 161 Mechanisms II:

A continuation of the study of fundamental concepts and application of mech-

anical and electromechanical mechanisms. These mechanisms will be studied in terms of their function, specifications and operating characteristics. Emphasis will be placed on the use of these machines in integrated electro-mechanical systems as found in business machines and data processing equipment.

In the laboratory these mechanisms will be studied in an electromechanical system with respect to their input and output characteristics. Emphasis will be placed on methods of controlling and analyzing malfunctions. All laboratory projects will be designed and then constructed using breadboard techniques.

Prerequisite: T-MEC 160.

T-MEC 213A Production Planning I:

Day-to-day plant direction; forecasting, product planning and control, scheduling, dispatching, routing, and inventory control. Case histories are discussed in the classroom, and courses of corrective action are developed. Drafting room layouts for planning and control.

Prerequisite: T-DFT 102, MEC 217.

Corequisite: T-MEC 101.

T-MEC 213B Production Planning II:

Continuation of T-MEC 213A. Day-to-day plant direction; forecasting, product planning and control, scheduling, dispatching, routing, and inventory control. Case histories are discussed in the classroom, and courses of corrective action are developed. Drafting room layout for planning and control.

Prerequisite: T-MEC 213A.

T-MEC 217 Engineering Materials and Processes:

An introductory study of the common materials used in engineering, such as woods, metals, concrete, plastics, etc. and the related physical testing to determine their properties and strengths. Emphasis is placed upon problem-solving and engineering application.

Prerequisite: T-PHY 102.

MEC 1001 Machine Practices I:

Designed to acquaint the student with machine shop safety rules, regulations, and practices; the use and care of basic machine shop tools and instruments; and the operation of common machines used in the machine trades, such as shapers, lathes, drills and grinders. Lecture and laboratory will be coordinated to provide a balanced development of knowledge and skill in blueprint reading and measurements, as well as machine operations.

Prerequisite: None.

MEC 1002 Machine Practices II:

Designed to further develop knowledge of machine practices, safety procedures, and the application of tools and instruments. Lecture and laboratory will be coordinated to provide extended knowledge and experience in operations as related to production and quality controls; specialized

applications of various machines; and general machine shop support. Laboratory practice and drill will enable the student to develop a high degree of operational skill on a selected machine.

Prerequisite: MEC 1001.

MEC 1101 Machine Shop Theory and Practice I:

An introduction to the machinist trade and the potential it holds for craftsmen. Deals primarily with the identification, care and use of basic hand tools and precision measuring instruments. Elementary layout procedures and processes of lathe, drill press, grinding (off-hand) and milling machines will be introduced both in theory and practice.

Prerequisite: None.

MEC 1102 Machine Shop Theory and Practice II:

Advanced operations in layout tools and procedures, power sawing, drill press, surface grinder, milling machine shaper. The student will be introduced to the basic operations on the cylindrical grinder and will select projects encompassing all the operations, tools and procedures thus far used and those to be stressed throughout the course.

Prerequisite: MEC 1101.

MEC 1103 Machine Shop Theory and Practice III:

Advanced work on the engine lathe, turning, boring and threading machines, grinders, milling machine and shaper. Introduction to basic indexing and terminology with additional processes on calculating, cutting and measuring of spur, helical, and worm gears and wheels. The trainee will use precision tools and measuring instruments such as vernier height gages, protractors, comparators, etc. Basic exercises will be given on the turret lathe and on the tool and cutter grinder.

Prerequisite: Mec 1102.

MEC 1104 Machine Shop Theory and Practice IV:

Development of class projects using previously learned procedures in planning, blueprint reading, machine operations, final assembly and inspection. Additional processes on the turret lathe, tool and cutter grinder, cylindrical and surface grinder, advanced milling machine operations, etc. Special procedures and operations, processes and equipment, observing safety procedures faithfully and establishing of good work habits and attitudes acceptable to the industry.

Prerequisites: MEC 1103.

MEC 1112 Machine Shop Processes:

To acquaint the student with the procedures of layout work and the correct use of hand and machine tools. Experiences in the fundamentals of drill press and lathe operation; hand grinding of drill bits and lathe tools; set-up work applied to the trade.

Prerequisite: None.

MEC 1113 Shop Processes I:

Study of practices used in metalworking shops: introduction to how materials

can be utilized, and to the processes of shaping, forming and fabricating of metals. Demonstration of the metalworking lathes, grinders, drills, milling machines, shapers, planers, saws, broachers, gear cutting machines and finishing machines. A study of the capabilities of these machines.
Prerequisite: None.

MEC 1114 Shop Processes II:

Comparison of the unit-production and mass-production systems. Casting, forging and allied processes, welding and sheet metal working processes are demonstrated and discussed. Mass-production methods are studied in relationship to precision dimensional control.
Prerequisite: MEC 1113.

MEC 1115 Treatment of Ferrous Metals:

Investigates the properties of ferrous metals and tests to determine their uses. Instructions will include some chemical metallurgy to provide a background for the understanding of the physical changes and causes of these changes in metals. Physical metallurgy of ferrous metals, producing iron and steel, theory of alloys, shaping and forming, heat treatments for steel, surface treatments, alloy of special steel, classification of steels, and cast iron will be topics for study.
Prerequisite: None.

MEC 1116 Treatment of Non-Ferrous Metals:

Continuation of the study of physical metallurgy. The non-ferrous metals; bearing metals (brass, bronze, lead), light metals (aluminum and magnesium), and copper and its alloys are studied. Powder metallurgy, titanium, zirconium, indium and vanadium are included in this course.
Prerequisite: MEC 1115.

MEC 1201 Machine Processes I:

This course is designed to introduce the student to the tools, instruments, and machines used in the tool and die shop. The student will compare the machines used in production with those used in tool and die making. The student will become familiar with jigs and fixtures and their applications pertaining to production machining. Each student will be subjected to a series of projects that will require extreme proficiency.
Prerequisite: None.

MEC 1202 Machine Processes II:

Advanced operations of the tool and die shop, utilizing all machines. A study of shearing, punching, forming, and drawing dies will be presented. The student will receive instructions on gauging practices and its application to the finished product and will become familiar with various types of gauging procedures. Each student will work individually on a series of projects, gaining proficiency and knowledge of the various types of tools and dies found in industry.
Prerequisite: MEC 1201.

MEC 1203 Metallurgy:

Properties of metals and various methods of changing these properties,

classification of metals, powder metallurgy, and factors contributing to production and selection of metals will be presented. Chemical finishes, electroplating, and other methods of finishing or treating metals will be areas of study.

Prerequisite: None.

MEC 1204 Machine Processes:

This course will present a study of progressive dies typical of the operations found in the average industry. Step by step tooling used to transform raw material into a finished working part will be studied. Total utilization of all machines and instruments will be required. Application of hydraulic systems, air operated systems, pneumatic systems, and electronic controls and cycle devices will be presented. Emphasis will be placed on proper holding locations for machining and gauging finished parts.

Prerequisite: MEC 1202.

MEC 1205 Strength of Materials:

A study of stresses and shears that occur in materials when subjected to tensile, compressive, and/or shearing forces. Stresses in thin walled cylinders, riveted and welded joints, shear and bending moment diagrams, deflection, eccentrically applied loads, torsion, and factors of column design will be emphasized.

Prerequisite: MEC 1203.

MEC 1206 Machine Processes:

This course will be used to review various processes of tool and die work, jigs and fixtures and gauging. Consideration of the production desired will be used to select the proper systems. Each student will work individually on different processes or systems utilizing all machines, instruments, and tools in tool and die making.

Prerequisite: MEC 1204.

MEC 1207 Special Problems:

This course will be used to subject the student to special problems within local industries. Numerous field trips will be scheduled for individuals and groups to review installation of systems, development of dies, tools, jigs and fixtures, and gauging. Each student will be required to follow one complete system from the design stage through to production. Special procedures of die casting, sand casting, shell molding, injection molding, hydro forming, and others will be presented.

Prerequisites: MEC 1205, PHY 1204, MEC 1204.

MLA 1000 Orientation:

Introduction to scientific methodology, medical laboratory practice, and the role of the laboratory assistant. Field trips provide a broad overview of health resources in the community.

Prerequisite: None.

MLA 1001 Anatomy, Physiology and Basic Pathology:

Study of anatomy and physiology in relation to disease and medical terminology.

Prerequisite: None.

MLA 1002 Basic Science :

Study of the fundamental properties of matter, biological compounds and processes, atomic structure, and common chemicals utilized in medical laboratory science.

Prerequisite: None.

MLA 1003 Clinical Chemistry I:

Study of the theory and techniques used in the clinical chemistry laboratory.

Prerequisite: None.

MLA 1004 Urinalysis:

Study of urine collection and preservation, physical characteristics of urine, and routine qualitative and quantitative tests. Laboratory practice in identification of physical characteristics, measurements, and performance of specified tests.

Prerequisite: None.

MLA 1005 Hematology I:

Study of blood constituents and the theory and techniques used in collecting and studying blood samples. Laboratory practice in systems for enumeration of formed elements of the blood, measurement of other blood elements, and determination of sedimentation rates.

Prerequisite: None.

MLA 1006 Clinical Chemistry II:

Study of theory and procedures for analysis of specific metabolites. Laboratory practice in performance of specified tests.

Prerequisite: MLA 1003.

MLA 1007 Hematology II:

Study of coagulation theory and methods for performing specific blood studies. Laboratory practice in procedures related to identification and differentiation of blood cells and to coagulation of blood.

Prerequisite: MLA 1005.

MLA 1008 EKG and BMR:

Study of techniques of electrocardiography and determination of metabolic rate. Laboratory practice in performance of routine electrocardiograms and use of BMR machine.

Prerequisite: None.

MLA 1009 Microbiology:

Study of common microorganisms and routine techniques of the bacteriology department. Laboratory practice in planting selected cultures, presumptive identification of common organisms, and recovering ova, cysts, and parasites from feces.

Prerequisite: None.

MLA 1010 Blood Bank I:

Study of techniques utilized in donor screening, phlebotomies, blood grouping

and crossmatching. Laboratory practice in typing and crossmatching blood samples.

Prerequisite: None.

MLA 1011 Hematology III:

Applied practice in the hospital hematology laboratory. Experiences include patient contact, venipunctures, calibration of hemoglobin curve and hemoglobin and blood diluting pipettes, and duplication of findings of staff technologist on routine analyses of blood samples.

Prerequisite: MLA 1007.

MLA 1012 Chemistry and Urinalysis:

Applied practice in making reagents, using trip and analytical balances; calibrating colorimeter tubes; using standard curves, recoveries and control solutions; calculating standard deviation and confidence limits; checking all calculations; and performing urinalyses.

Prerequisite: MLA 1006.

MLA 1013 EKG:

Experience in making electrocardiograms, with emphasis on patient relationships.

Prerequisite: MLA 1008.

MLA 1014 Blood Bank II:

Supervised practice in A, B, O and Rh typing, cross-matching, and phlebotomies.

Prerequisite: MLA 1010.

MLA 1015 Bacteriology:

Supervised practice in procedures of the bacteriology, serology, and parasitology departments, to include: preparing cultures, reading gram stains and colony characteristics, staining and screening AFB smears, and preparing laboratory equipment, glassware, and media; performing routine serological tests; identifying parasites or occult blood in body specimens.

Prerequisite: MLA 1009.

MLA 1016 Histology:

Experience in assisting with autopsies, processing tissues, observing frozen sections, and performing special stains.

Prerequisite: None.

MLA 1017 Serology:

Fundamentals of immunology and serology. Vocabulary common to bacteriology and concepts common to blood banking. Routine and special serological methods of analysis are presented.

Prerequisite: None.

NUR 1010 Nurses' Assistant:

This course consists of three major areas of study: (1) Developmental Studies, which includes basic skills of reading, writing, and arithmetic; (2) Nursing Procedures, covering such basic nursing arts as bed making,

taking temperature, and giving baths; and (3) Clinical Practice, which is hospital practice of procedures previously learned under supervision of the instructor or floor nurse.

Prerequisite: None.

T-PHO 101 Basic Photography:

An introductory study of modern photographic methods and equipment. Instruction includes a study of the various types of cameras, their basic functions and operating principles, natural and artificial lighting principles and techniques, and the selection of the proper equipment for specific applications. Practical experience skills will be developed in the various aspects of photography including equipment set-up and photographing typical scenes in the laboratory and in the field.

Prerequisite: None.

T-PHY 101 Physics: Properties of Matter:

A fundamental course covering several basic principles of physics. The divisions included are solids and their characteristics, liquids at rest and in motion, gas laws and applications. Laboratory experiments and specialized problems dealing with these topics are part of this course.

Prerequisite: None.

T-PHY 102 Physics: Work, Energy, Power:

Major areas covered in this course are work, energy, and power. Instruction includes such topics as statics, forces, center of gravity and dynamics. Units of measurement and their applications are a vital part of this course. A practical approach is used in teaching students the use of essential mathematical formulas.

Prerequisites: T-MAT 101, T-PHY 101.

T-PHY 103 Physics: Electricity:

Basic theories of electricity, types of electricity, methods of production, and transmission and transforming of electricity. Electron theory, electricity by chemical action, electricity by friction, electricity by magnetism, induction voltage, amperage, resistance, horsepower, wattage, and transformers are major parts of the course.

Prerequisites: T-PHY 101, T-MAT 101.

T-PHY 104 Physics: Light and Sound:

A survey of the concepts involving wave motion leads to a study of sound, its generation, transmission and detection. The principles of wave motion also serve as an introduction to a study of light, illumination and the principles involved in optical instruments. Application is stressed throughout.

Prerequisites: T-MAT 101, T-PHY 101.

T-PHY 231 Fluid Mechanics:

Fundamental laws of fluid flow and application of these laws to the sizing of hot and cold water piping, steam piping, refrigerant piping, air ducts, pumps, and fans. Particular emphasis will be directed to calculations of capacity,

horsepower, and head requirements of pumps and fans; to comparison of the several methods of piping and air duct sizing; and to methods of fluid flow measurement.

Prerequisites: T-MAT 103, T-PHY 102.

PHY 1101 Applied Science I:

An introduction to physical principles and their application in industry. Topics in this course include measurement: properties of solids, liquids, and gases; basic electrical principles.

Prerequisite: None.

PHY 1102 Applied Science II:

The second in a series of two courses of applied physical principles. Topics introduced in this course are heat and thermometry, and principles of force, motion, work, energy, and power.

Prerequisite: PHY 1101.

PHY 1204 Mechanisms:

This course consists of an application of mathematics and drafting room procedures to the solution of problems involving the principles of machine elements. A study of motions of linkages, velocities, and acceleration of points within a link mechanism, and layout methods for designing cams, belting, pulleys, gear and gear trains will be presented.

Prerequisites: DFT 1208, MAT 1204.

PHY 1205 Hydraulics and Pneumatics:

A basic theory of hydraulics and pneumatics systems and their combinations in various circuits. Function and basic design of circuits and motors, controls, electrohydraulic servo elements, synchro elements, and air operated systems will be presented. Automated systems of productions utilizing dies, tools, gauges, jigs and fixtures will be considered.

Prerequisites: MEC 1204, PHY 1204.

PME 1001 Basic Auto Shop Practices:

Basic Auto Shop Practices is a course of study designed to acquaint the student with the fundamentals of shop safety, shop procedures, and tool use and care. Lecture and laboratory are closely correlated to provide a maximum of related learning. Study of automotive systems and components is limited to nomenclature and function as it relates to proper assembly and disassembly procedures. During this course the student will acquire experience by working with tools in such systems and components as: engines, cooling, electrical, carburation, and lubrication.

Prerequisite: None.

PME 1002 Automotive Shop Practices:

Automotive Shop Practices is a course of study designed to further develop skill in the application of automotive tools, develop ability to follow written and oral instructions and procedures, and develop greater knowledge of the nomenclature and function of automotive systems. Lecture and laboratory

are closely related and provide opportunities to acquire sound work habits and broad experience on several systems and components. During this course the student will be working with starters and generators, lighting systems, ignition systems, transmissions, chassis, suspension, and brakes. Prerequisite: PME 1001.

PME 1101 Internal Combustion Engine:

Development of a thorough knowledge and ability in using, maintaining, and storing the various hand tools and measuring devices needed in engine repair work. Study of the construction and operation of components of internal combustion engines. Testing of engine performance; servicing and maintenance of pistons, valves, cams and camshafts, fuel and exhaust systems; cooling systems; proper lubrication; and methods of testing, diagnosing and repairing.

Prerequisite: None.

PME 1102 Engine Electrical and Fuel Systems:

A thorough study of the electrical and fuel systems of the automobile. Battery cranking mechanism, generator, ignition, accessories and wiring; fuel pumps, carburetors, and fuel injectors. Characteristics of fuels, types of fuel systems, special tools, and testing equipment for the fuel and electrical system.

Prerequisite: PME 1101.

PNE 1101 Fundamentals of Practical Nursing:

Interpretation of the role of the practical nurse student and basic knowledge to be used in performing nursing. Philosophy and objectives of practical nursing in the Technical Institute setting. Using adequate study methods and materials. Beginning knowledge of interpersonal relationships in nursing. Principles basic to nursing practice. Body mechanics for nurse and patient. Sterilization techniques and disinfection methods. Principles of medical and surgical asepsis. Uses of hospital equipment. Techniques in daily hygienic patient care. Spoken and written communications for nurses. Laboratory practice in simple skills and hygienic care of patients. Prerequisite: None.

PNE 1102 Nutrition and Diet Therapy:

Designed to give knowledge of the basic principles of nutrition. Functions and sources of nutrients. The mechanics of digestion, absorption and metabolism of nutrients. Principles of meal planning, nutritional requirements for all age groups modified by religious, cultural, social, and psychological aspects.

Prerequisite: None.

PNE 1103 Anatomy and Physiology:

A thorough study of the general plan of the body and the nine systems; nervous, endocrine, skeletal, muscular, circulatory, digestive, respiratory, urinary, male and female reproductive system. Designed for understanding of how the body controls its functions, how the body stands erect and moves, how the body distributes food and oxygen and removes waste, how the body provides for reproduction.

Prerequisite: None.

PNE 1104 Growth and Development:

Designed to show the individual as a member of a family and community. Normal development from birth to old age. Influences of the environment. Physical, mental, and personality changes with age. Community responsibilities and resources for young and old. Guest speakers from community agencies.

Prerequisite: None.

PNE 1105 Pharmacology I:

Review of mathematics as used by nurses. Development of the skill of giving oral medications. Knowledge of drug sources, methods of preparation and storage. The classification of drugs by use and by drug content.

Prerequisite: None.

PNE 1106 Medical-Surgical Nursing I:

Planned to give beginning understanding of the nursing care of common problems caused by illness. Emotional reactions caused by illness and hospitalization. Nurse-patient relationships. Fundamental processes of illness and nursing care. Diagnostic tests. The nursing needs of the cancer patient and other selected medical patients. Nursing care of the surgical patient. Introduction to rehabilitation. Modification of diet for disease conditions.

Prerequisite: PNE 1101 and PNE 1103.

PNE 1107 Obstetrical Nursing:

Presentation of modern aspects of maternity nursing with emphasis on normal obstetrics. Detailed presentation of material on nursing care during antepartum, labor and postpartum periods. Care of the newborn baby and methods of teaching new mothers. Emphasis is to provide better and safer care for the expectant mother and her baby.

Prerequisite: PNE 1101 and PNE 1103.

PNE 1108 Pediatric Nursing:

Understanding of the scope and aims of modern nursing of children. Differences in the nursing care of children from adults. Methods of answering the needs of the hospitalized child and his parents. Common disorders of children and their implications for nursing care.

Prerequisite: PNE 1104.

PNE 1109 Clinical Experience I:

Beginning experience in a general hospital under supervision of clinical teachers. Opportunities for practicing skills learned in laboratory practice. Emphasis on basic hygienic care for ambulatory and bed patients. Practice in charting nurses' notes and making observations with the use of testing materials and instruments. Beginning opportunities to develop concepts needed for caring for patients as a part of a nursing team.

Prerequisite: PNE 1101.

PNE 1110 Medical-Surgical Nursing II:

Designed to develop knowledge of common disorders of body systems, the

nursing care, socio-psychological implications. Includes disorders of the cardiovascular, gastro-intestinal, respiratory and integumentary systems. Disorders of eye, ear, nose, and throat.

Prerequisite: PNE 1106.

PNE 1111 Pharmacology II:

Development of a thorough knowledge of the equipment and sterile techniques used in preparing and giving injections. Administration of drugs by inhalation, topical application. Insulin therapy. Home drug preparation and storage.

Prerequisite: PNE 1105.

PNE 1112 Clinical Experience II:

Further experience in the practice of nursing skills. Continued experiences in the basic areas of medical-surgical nursing, pediatric nursing or obstetrical nursing. Experience in giving oral and topical medications under the direction of clinical teacher. Emphasis on observation of signs and symptoms and taking part in making nursing judgments in team conference. Isolation techniques and practice, oxygen therapy.

Prerequisite: PNE 1109.

PNE 1113 Medical-Surgical Nursing III:

Continuation of study of disorders of the body systems. Includes Musculo-Skeletal, Endocrine, and Nervous Systems. Urological disorders and nursing care. First aid. Advanced nursing ethics, medico-legal aspects of practical nursing, organizations for the graduate practical nurse.

Prerequisite: PNE 1110.

PNE 1114 Clinical Experience III:

Student learns her role as an assistant to the professional nurse in caring for the more seriously ill patient. Continued experience in the basic areas of medical-surgical nursing, pediatric nursing or obstetrical nursing under supervision of clinical teachers. Practice in giving injections under the direct supervision of a clinical teacher. Experience in more complicated nursing treatments. Organization for patient care for groups of patients.

Prerequisite: PNE 1112.

T-POL 102 Government - National:

English and colonial background, the articles of confederation and the framing of the federal constitution. The nature of the federal union; state rights, federal powers, political parties. The general organization and functioning of the national government.

Prerequisite: None.

T-POL 103 Government - State and Local:

A study of state and local government, state-federal interrelationships, the functions and prerogatives of the branches. Problems of administration, legal procedures, law enforcement, police power, taxation, revenues and appropriations. Special attention will be given to North Carolina.

Prerequisite: None.

T-POL 201 United States Government:

A study of government with emphasis on basic concepts, structure, powers, procedures and problems.

Prerequisite: None.

T-PSC 101 Introduction to Law Enforcement:

A general course designed to familiarize the student with a philosophy and history of law enforcement, including its legal limitations in a democratic republic, a survey of the primary duties and responsibilities of the various law enforcement agencies, a delineation of the basic processes of justice, an evaluation of law enforcement's current position, and an orientation relative to law enforcement as a vocation.

Prerequisite: None.

T-PSC 110 Police Role in Crime & Delinquency:

The study primarily concerned with scientific efforts to understand crime and to understand man in relation to crime phenomena. It deals with those definitions and formulations of crime and criminals upon which an adaptation system of criminology must be based. It examines the law as the basic framework with which social deviations of a peculiar character assume their functions as criminal acts and those broad principles upon which a science of criminology must rest.

Prerequisite: None.

T-PSC 115 Criminal Law:

Designed to present a basic concept of criminal law and create an appreciation of the rules under which one lives in our system of government.

Prerequisite: None.

T-PSC 201 Traffic Planning and Management:

A study which covers the history of the traffic enforcement problem and gives an overview of the problem as it exists today. Attention will be given to the 3 E's and legislation, the organization of the traffic unit, the responsibilities to the traffic function of the various units within the law enforcement agency, enforcement tactics, evaluation of the traffic program effectiveness, and the allocation of men and materials.

Prerequisite: None.

T-PSC 205 Criminal Evidence:

Instruction covers the kinds and degrees of evidence and the rules governing the admissibility of evidence in court.

Prerequisite: None.

T-PSC 210 Criminal Investigation:

This course introduces the student to fundamentals of investigation; crime scene search; recording, collection and preservation of evidence; sources

of information; interview and interrogation; case preparation and court presentation; and the investigation of specific offenses such as arson, narcotics, sex, larceny, burglary, robbery and homicide.
Prerequisite: None.

T-PSC 211 Introduction to Criminalistics:

A general survey of the methods and techniques used in modern scientific investigation of crime, with emphasis upon the practical use of these methods by the students. Laboratory techniques will be demonstrated and the student will participate in actual use of the scientific equipment.
Prerequisite: T-PSC 210.

T-PSC 220 Police Organization and Administration I:

Introduction to principles of organization and administration, discussion of the service functions; e.g., personnel management, police management, training, communications, records, property maintenance and miscellaneous services.
Prerequisite: None.

T-PSC 225 Criminal Procedure:

This course is designed to provide the student with a review of procedures from incident to final disposition; principles of constitutional, federal, state and civil laws as they apply to and affect law enforcement.
Prerequisite: T-PSC 101, T-POL 103.

T-PSC 226 Chemical Tests for Intoxication:

A study of the history, purpose, methods, equipment, and status of chemical tests for intoxication. The physiology of alcohol is explained. Arrest and courtroom procedures are outlined. Laboratory exercises provide an opportunity to develop an understanding of and proficiency in the operation of current equipment.
Prerequisite: T-CHM 101.

T-PSC 230 Crime Scene Technology:

Covers the search for physical evidence and the location, reproduction, identification, collection, preservation, and transporting of evidence to the crime laboratory. Laboratory situations will provide practical experience to supplement the techniques and procedures studied.
Prerequisite: T-PHO 101.
Corequisites: T-PSC 205, T-PSC 210.

T-PSY 102 General Psychology:

A study of the various fields of psychology; the development process; motivation; emotion, frustration and adjustment; mental health; attention and perception; problems of group living. Attention is given to application of these topics to problems of study, self-understanding and adjustment to the demands of society.
Prerequisite: None.

T-PSY 103 Adolescent Psychology:

A study of the nature and source of the problems of adolescents in western culture; physical, emotional, social, intellectual and personality development of adolescents.

Prerequisite: T-PSY 102.

T-PSY 112 Personality Development:

Designed to help the student recognize the importance of the physical, intellectual, social, and emotional dimensions of personality. Emphasis is placed on grooming and methods of personality improvement.

Prerequisite: None.

T-PSY 206 Applied Psychology:

A study of the principles of psychology that will be of assistance in the understanding of inter-personal relations on the job. Motivation, feelings and emotions are considered with particular reference to on-the-job problems. Other topics investigated are: employee selection, supervision, job satisfaction, and industrial conflicts. Attention is also given to personal and group dynamics so that the student may learn to apply the principles of mental hygiene to his adjustment problems as a worker and a member of the general community.

Prerequisite: None.

T-PSY 215 Psychology of Groups and Crowd Control:

Covers the psychological characteristics of leaders and followers, individual versus group action and reaction, and effective methods of crowd control. Case histories and illustrative examples are used extensively to provide opportunities to explore practical application and to gain insight into determining the proper action to take in dealing with crowds or mobs.

Prerequisites: T-PSY 102, T-SOC 102.

T-PSY 227 Driver and Pedestrian Psychology:

A comprehensive study of the psychology of the driver and the pedestrian, supplemented extensively with findings resulting from research into the characteristics of various types of drivers and pedestrians. Such topics as action-reaction responses, effects of drugs and other stimulants or depressants, mesmerism, psychological attitudes, and personal histories will be discussed.

Prerequisite: T-PSY 206.

PSY 1101 Human Relations:

A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation.

Prerequisite: None.

PSY 1111 Psychology for Health Occupations:

A study of fundamental principles of psychology as they apply to those

employed in health occupations. A practical understanding of these principles is developed through a study of the relationship of the health worker to patients and related factors such as: aspects of growth and development; emotions and emotional behavior; drives, motivation and personality; conflict and frustration; and mental disorders. Where possible, case studies will be used to illustrate psychological principles being studied and to stress the human relations aspect of the effective health worker.

Prerequisite: None.

T-SOC 102 Principles of Sociology:

An introductory course in the principles of sociology. An attempt to provide an understanding of culture, collective behavior, community life, social institutions and social change. Presents the scientific study of man's behavior in relation to other men, the general laws affecting the organization of such relationships and the effects of social life on human personality and behavior.

Prerequisite: None.

SUR 1101 Principles of Operating Room Technique:

An introductory course devoted to developing an understanding of the principles of operating room technique and acquiring fundamental skills essential to assisting in the operating room. Instruction includes environmental and personal orientation; weights and measures; anesthesia; operating room procedures; operating room technique, operating room personnel duties and ethical, moral, and legal responsibilities. Laboratory exercises are designed to provide support through practice and skill development for the principles and techniques discussed in class.

Prerequisite: None.

SUR 1102 Anatomy and Physiology:

A thorough study of the general plan of the body and the nine systems: nervous, circulatory, respiratory, muscular, skeletal, digestive, urinary, reproductive, and endocrine. The course is designed to acquire an understanding of how the body controls its functions, how the body stands erect and moves, how the body distributes food and oxygen and removes waste, and how the body provides for reproduction.

Prerequisite: None.

SUR 1103 Microbiology:

An introductory course devoted to developing an understanding of microorganisms as they relate to the operating room and the patient's recovery from surgery. Laboratory exercises are designed to use the microscope, to operate a sterilizer, to disinfect an operating room, and to conduct a septic case.

Prerequisite: None.

SUR 1104 Surgical Procedures:

A thorough study of the most important surgical procedures related to the nine body systems: nervous; circulatory; respiratory; muscular; skeletal;

digestive; urinary; reproductive, including the use of radium; and endocrine. Instruction also includes special instruments and equipment as they relate to each procedure.

Prerequisites: SUR 1101, SUR 1102, SUR 1103.

SUR 1105 Clinical Practice:

Applied practice in the passing of instruments, threading of suture, and operation of special equipment during an operative case. Experience also includes practice in the delivery room, recovery room, and emergency room.

Prerequisites: SUR 1101, SUR 1102, SUR 1103.

T-TRA 101 Introduction to Traffic Engineering:

This course offers a general overview of the field of traffic engineering technology and provides an insight to related career opportunities. It relates human factors and driver characteristics to the vehicle, roadway and environment. Traffic characteristics are defined in terms of speed, design, speed zoning, density, gaps and lags, and traffic volume. The course serves as an introduction for traffic engineering technology students. The laboratory is used for problems, experiments and field trips.

Prerequisite: None.

T-TRA 110 Principles of Traffic Administration and Safety:

By studying traffic administration and safety, the student learns how budget, public relations, interagency problems and other systems operations affect traffic engineering. Stressing traffic safety as a basic consideration for all technical aspects of the field, the student is shown that field traffic surveys, control devices, geometric design, traffic studies, traffic laws and urban transportation planning constitute the major subject areas of traffic engineering technology.

Prerequisite: T-TRA 101.

T-TRA 120 Principles of Traffic Engineering:

A study of the fundamentals involved in traffic planning and management. Instruction will include the techniques used in the collection of traffic data and its application, with particular attention to traffic flow characteristics, traffic volume, types of traffic, and traffic control systems. Laboratory exercises will include collection of data, data examination, and reporting for later analysis.

Prerequisite: T-TRA 101.

T-TRA 121 Motor Vehicles - Types and Characteristics:

This course is devoted to studying the various types of motor vehicles to be considered in traffic planning and management. Instruction will include nomenclature, operating characteristics, and traffic regulations related to such motor vehicles as trucks, cars, motorcycles, farm tractors, and trailers. Included in the study will be consideration of speed zones, control signs, and other methods used in regulating mixed traffic.

Prerequisite: T-TRA 110.

T-TRA 201 Traffic Surveys:

By collecting actual field data, the student solves problems relating to accident reporting, collision diagramming, intersection surveys, pedestrian volumes, and parking studies related to control, financing, design, demand characteristics, meters, terminals, vehicle dimensions, signs and parking. Emphasis will be placed on the methods and equipment required for the collection of field data, the writing of reports and the formulation of recommendations to solve these related problems.

Prerequisites: T-TRA 120, T-TRA 121.

T-TRA 210 Traffic Studies:

Using actual field problems, the student is taught how to plan and execute traffic engineering studies. Studies concerned with illumination, origin and destination, speed and volume stress the basic concepts of counting procedures, counting equipment, ADT, cordons, flow maps, short counts, peak hour, platoon flow, composition, thirtieth HV, and other traffic concepts. Emphasis is also placed on the use of data processing and statistics to reduce bulk data and analyze results.

Prerequisite: T-TRA 201.

T-TRA 221 Principles of Transportation Planning:

A study of interorganizational functions and responsibilities at local, state and federal levels in the process of transportation planning. Included in the study are such concepts as benefit, cost, economic analysis, traffic forecasting and needs studies. Practical exercises concentrate on these small segments of transportation planning as they relate to the total planning of large systems such as urban transportation systems.

Prerequisite: T-TRA 210.

T-TRA 222 Traffic Control Devices, Materials, and Equipment:

In the general context of design maintenance and placement, the course emphasizes sign (illumination, lettering, response time, type and design), signals (cycle lengths, phases, offsets, equipment and maintenance), markings, lighting (highways, intersections, special areas), and delineation.

Prerequisite: T-TRA 210.

T-TRA 223 Geometric Design:

This course involves a detailed study of the geometry of roadway design, Included in instruction are such topics as horizontal, vertical and transitional curves, super elevations, surfaces, width, curb radii, shoulders, acceleration and deceleration laws, and other design aspects essential to the solution of field problems. Laboratory exercises will provide opportunities for geometric layout and preparation of geometric design plans for problem solving.

Prerequisite: T-CIV 101, T-TRA 210.

WLD 1001 Practical Welding I:

Designed to acquaint the student with the fundamentals of shop safety, shop procedures, tool and welding machine use and care. Study of welding theory, techniques, and machines is limited to nomenclature and function as it

relates to proper welding knowledge of application and technique. During the course knowledge and skill development will include: welding equipment and tools, oxyacetylene welding, gas welding of various type joints, and selection of proper welding materials used in the gas process. Related instruction develops blueprint reading ability and symbol recognition.
Prerequisite: None.

WLD 1002 Practical Welding II:

Continued development of basic knowledge and skills essential to the welder. Instruction is designed to acquaint the student with arc welding, MIG welding, and TIG welding equipment and processes. Opportunity is provided for skill development in the use of these processes and equipment in applications involving a variety of methods used in joining metals of various types.
Prerequisite: WLD 1001.

WLD 1101 Basic Gas Welding:

Welding demonstrations by the instructor and practice by students in the welding shop. Safe and correct methods of assembling and operating the welding equipment. Practice will be given for surface welding; bronze welding, silver-soldering, and flame-cutting methods applicable to mechanical repair work.
Prerequisite: None.

WLD 1112 Mechanical Testing and Inspection:

The standard methods for mechanical testing of welds. The student is introduced to the various types of tests and testing procedures and performs the details of the test which will give adequate information as to the quality of the weld. Types of tests to be covered are: bend, destructive, free-bend, guided-bend, nick-tear, notched-bend, tee-bend, nondestructive, V-notch, Charpy impact, etc.
Prerequisites: WLD 1120.

WLD 1120 Oxyacetylene Welding and Cutting:

Introduction to the history of oxyacetylene welding, the principles of welding and cutting, nomenclature of the equipment, assembly of units. Welding procedures such as practice of puddling and carrying the puddle, running flat beads, butt welding in the flat, vertical and overhead position, brazing, hard and soft soldering. Safety procedures are stressed throughout the program of instruction in the use of tools and equipment. Students perform mechanical testing and inspection to determine quality of the welds.
Prerequisite: None.

WLD 1121 Arc Welding

The operation of AC transformers and DC motor generator arc welding sets. Studies are made of welding heats, polarities, and electrodes for use in joining various metal alloys by the arc welding process. After the student is capable of running beads, butt and fillet welds in all positions are made and tested in order that the student may detect his weaknesses in welding. Safety procedures are emphasized throughout the course in the use of tools and equipment.
Prerequisite: None.

WLD 1122 Commercial and Industrial Practices:

Designed to build skills through practices in simulated industrial processes and techniques: sketching and laying out on paper the size and shape description, listing the procedure steps necessary to build the product, and then actually following these directions to build the product. Emphasis is placed on maintenance, repairing worn or broken parts by special welding applications, field welding and nondestructive tests and inspection.

Prerequisites: WLD 1120, WLD 1121.

WLD 1123 Inert Gas Welding:

Introduction and practical operations in the use of inert-gas-shield arc welding. A study will be made of the equipment, operation, safety and practice in the various positions. A thorough study of such topics as: principles of operation, shielding gases, filler rods, process variations and applications, manual and automatic welding.

Prerequisites: WLD 1120, WLD 1121.

WLD 1124 Pipe Welding:

Designed to provide practice in the welding of pressure piping in the horizontal, vertical, and horizontal fixed position using shielded metal arc welding processes according to Sections VIII and IX of the ASME code.

Prerequisite: WLD 1121.

WLD 1125 Certification Practices:

This course involves practice in welding the various materials to meet certification standards. The student uses various tests including the guided bend and the tensile strength tests to check the quality of his work. Emphasis is placed on attaining skill in producing quality welds.

Prerequisites: WLD 1123, WLD 1124.





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